Making Books

a guide to creating hand-crafted books
by the London Centre for Book Arts

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PAVILION

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Introduction

We hope that this book will be an accessible introduction to the craft of bookbinding. We approached the writing with the same philosophy with which we run our studio: a mix of pragmatism and an appreciation for the tradition of the craft. Some of the projects you will find in this book are practical variations on classic binding techniques that minimise the need for specialist equipment and materials for bookbinding at home. We chose to emphasise 'making books' rather than a strict tradition of bookbinding, because what we ultimately want the reader to take away is that books should be appreciated not only for their appearance or technical intricacies, but as functional vehicles for artists, writers, and anyone with an idea to share or a thought to put down on paper.

The term 'book arts' can mean different things to different people. Artist books, book works, fine bookbinding, artist publications, and artist multiples are a few terms that can potentially mean the same thing, and can take on many different forms. We like to think of book arts as a catch-all term that has the idea or form of the book at its core, but can accommodate a lot of different approaches. Simply put, an artist book is a work that has been created by an artist that uses the form and concept of the book (narrative, dissemination of information, text/image, etc) in an intentional way.

London Centre for Book Arts is an artist-run, open-access studio devoted to book arts and artist-led publishing. After years of collecting equipment and machinery, and raising funds, we moved into our 1700 square foot studio in the autumn of 2012. Soon after, we opened up our studio to the community and began our programme of teaching the craft of bookbinding and printing to the public, becoming the first centre of its kind in the UK.

Our studio is based in Fish Island in east London, just across the road from the Queen Elizabeth Olympic Park, in what was once the heart of London's print industry – the building that currently houses the Centre was once home to a commercial printer and lithographer. As technologies have changed, so has the industry. A couple of speciality printers and some wonderful old buildings are all that's left of the industrial and commercial heritage of the area. After the factories left, many of the buildings were taken over by artists, and in recent history, the community of Fish Island and neighbouring Hackney Wick has grown to become the home of the highest concentration of artist studios in Europe. It was a matter of serendipity that we founded our studio in an area so rich with the history of our craft, but we hope that we can play a small part in continuing that legacy.

The studio was started by two artists, Simon Goode and Ira Yonemura.

Our mission, and guiding principle from the start, has been to foster and promote book arts and artist-led publishing in the UK through collaboration, education, and by providing open-access to printing and bindery facilities; a space for knowledge sharing and skills exchange.

There are a few different ways in which we carry out our mission:

Education

We run regular workshops and courses at the studio and off site at schools, universities, galleries, museums, and other venues. The core of our workshops is craft-based, such as bookbinding (some of which is covered in this book), printing, foil blocking, paper making, and marbling. We also run workshops and courses specifically for artists that explore the methods of publishing as a creative practice.

Open-access Studio

All of the equipment and facilities at the Centre are accessible to the public through our membership programme. We try our hardest to keep access affordable, and membership is open to anyone, whether they are artists, designers, craftspeople, or someone just wanting to make a one-off book. At the studio we offer advice and guidance on technical matters and the ins-and-outs of self-publishing.

Project Space

Some of our creative programming includes publishing projects, artist residencies, and collaborating with other artists on book or publishing projects. Working with other artists to help realise their work has been one of the most inspiring aspects of running our studio. By regularly hosting book launches, readings, exhibitions, and other events at the Centre, we encourage the public to engage with contemporary artists, writers and publishers who are shaping the way we think about book arts and creative publishing today.

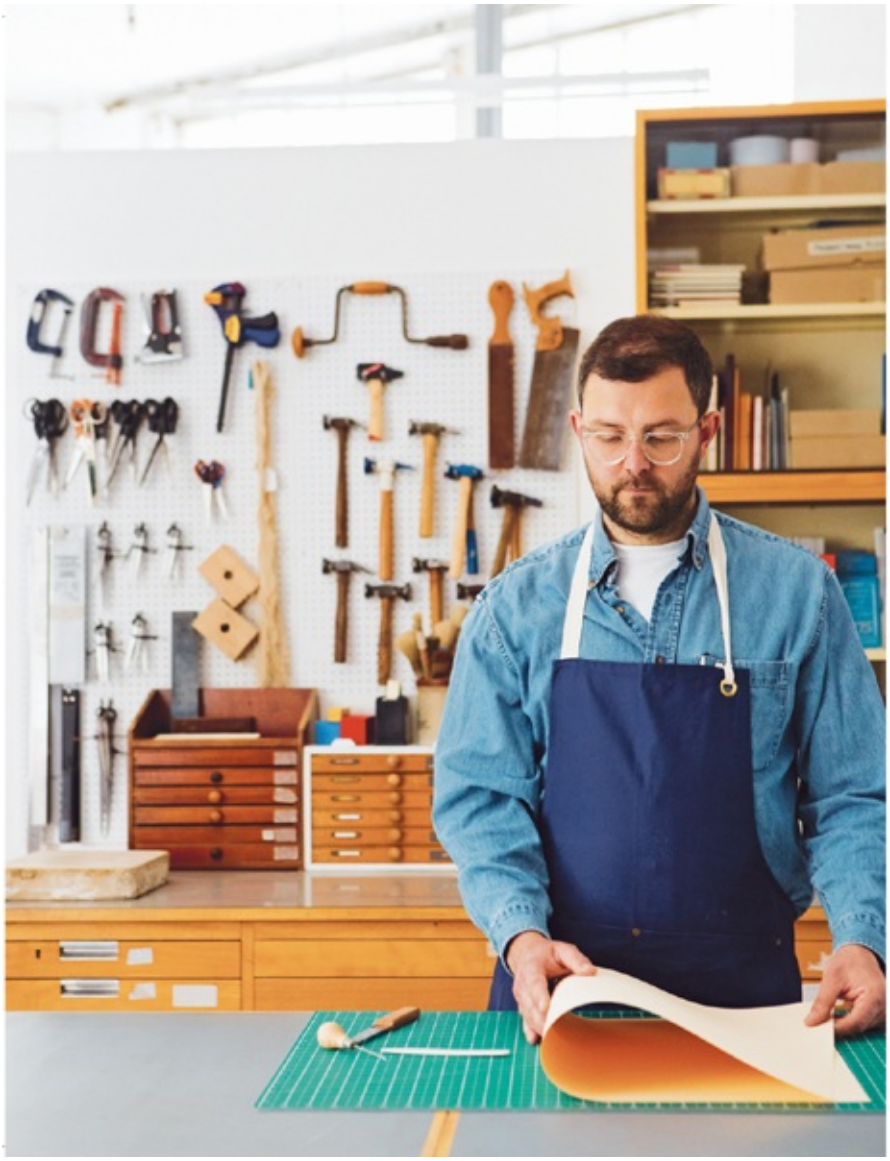
To find out more, visit us at www.londonbookarts.org.

The bindery

The bindery at the Centre takes up roughly half of our total studio space; the other half is dedicated to printing. Throughout the week, the bindery is busy with the activity of studio members and workshops.

The current layout of the bindery is a result of finding out what works best for us and our members over the past four years; plenty of trial and error. We have included some tips that you may find useful at home, but when you are starting out, you will no doubt find the most comfortable and practical work environment for yourself through experience.

Some of the bigger equipment that you will find in our bindery is specialist equipment that would be impractical for a home bindery, so we have included some simple DIY alternatives in the following chapters.



At the heart of the bindery is the **workbench**. A bindery workbench should ideally be quite sturdy and stable. The workbench should be at around waist height, a height that you can work comfortably at both standing up and seated on a stool for sewing and detailed work. The surface of the workbench should be large enough so that you can use your longest ruler

across its width, and lay your cutting mat with ease.

Try to keep your work area as tidy as you can at all times. A cluttered work area is the most common cause of accidents and missteps. Keep a waste paper bin nearby for you to quickly discard any glued-out pieces of waste paper, and to ensure that they're kept away from your work.

We hang our most commonly used tools on a pegboard attached to the wall. Brushes, scissors or shears, rules, spring dividers, hammers, and even thread are all hung on the board within arm's reach.

The workbenches and a few other pieces of furniture in our bindery were originally built for the bindery at the Bodleian Library at the University of Oxford, one of the oldest libraries in Europe. We were lucky enough to acquire some pieces when the Bodleian began building their new bindery.

The **board chopper** is used to cut and trim greyboard and millboard. Board choppers are heavy and sturdy, usually cast iron, and have two blades – operating like a pair of shears to cut through board with ease, and, most importantly, squarely.

The **laying press** and finishing press (see here) are both wooden presses used to steady the book while you work on the spine, either gluing, trimming, backing, sewing endbands, or edge colouring or gilding. Laying presses are larger than finishing presses. They are often used in conjunction with a frame called a tub, set just below waist height, for working on larger books, and for trimming books using a plough.

One of the most frequently used pieces of machinery in our

studio is the electric **guillotine**. The guillotine is used to chop down reams of paper to size, and to trim the edges of books squarely. Trimming of books can be done by hand (see here), but if you have a large stack of books or reams of paper you need cutting down and you do not have access to a guillotine, a local printers or reprographics shop may be able to help.

Board chopper, laying press and guillotine. When hand binding books, trimming the books is a matter of taste. You may prefer to leave the books untrimmed for a hand-crafted look.

Sewing frames (below, left) are some of the oldest pieces of equipment that we have in our bindery. Made of wood, the frames are used to sew the sections of multiple books at the same time. The **finishing press** (below, right) is used, like the laying press, to hold the book in position while you glue and line the spine. Suitable for smaller projects.

We have several cast-iron **nipping presses** around the bindery. A distinctive, often antique piece of equipment commonly found in most binderies. Used to apply pressure and flatten books, sections and boards.

FURNIVAL & Co
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Tools & equipment

When making books at home, a lot can be done with little. Although many steps of bookbinding can be improvised, you will need a small number of relatively inexpensive but essential tools to help you along the way. We have listed the specific tools that you will need at the beginning of each project.

Many of these tools are handy to have in any workshop, not just binderies, and can be substituted with things found around the house or at your local DIY store.

Binders, like other craftspeople, tend to have a special relationship with their tools, and tools in the bindery have a habit of taking on the personality of their users. We would encourage everyone to experiment and find the tools right for them, and for each project.

What you will need

If you are beginning your collection from scratch, you'll need a few simple tools to get you started. For the purpose of this book, and as a good beginners' selection of bindery tools, we recommend the following:

1. Carpenter's square
2. Clipt-point shoe knife
3. Bulldog or foldback clips
4. Scalpel (Swann Morton no.3 scalpel handle and 10A blades)
5. Awl
6. Scissors
7. Glue brush
8. Spring divider (10cm/4in)
9. Bone folder (15cm/6in pointed)
10. Mechanical pencil and eraser
11. Bookbinding needles (size 18)
12. Metal ruler, straight edge
13. Metal triangle, or set square
14. Weights and pressing board (not shown)
15. Cutting mat (not shown)

We have included a list of recommended suppliers on here.

We do our best to find tools that are made in the UK, partly for quality, and partly to support businesses that have been making traditional craft tools for generations. It has been an eye-opening and often inspiring experience finding and getting to know tool makers who are passionate about their

craft and, in spite of the changing landscape of industry in the UK and beyond, continue to produce high-quality products with pride.

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13.

Bone folder

A long and thin tool usually made of cow bone, used for folding and scoring paper. A typical bone folder will be pointed and thinner at one end. In our workshops we use a bone folder that is 15cm (6in) long and pointed on one end. Most bookbinders will have an assortment of shapes and sizes for different projects. Bone folders should be regularly lubricated either by soaking them in mineral oil overnight, or, as some bookbinders prefer, by rubbing the tip of the folder along the side of their nose.

Teflon folder

A folding tool made from Teflon. Similar to bone folders, Teflon folders come in different shapes and sizes. Although Teflon folders are expensive compared to folders made from bone, they have a special advantage of not marking or burnishing the materials that you are working with – something to consider when working on special or delicate projects.

Awl and pin vice

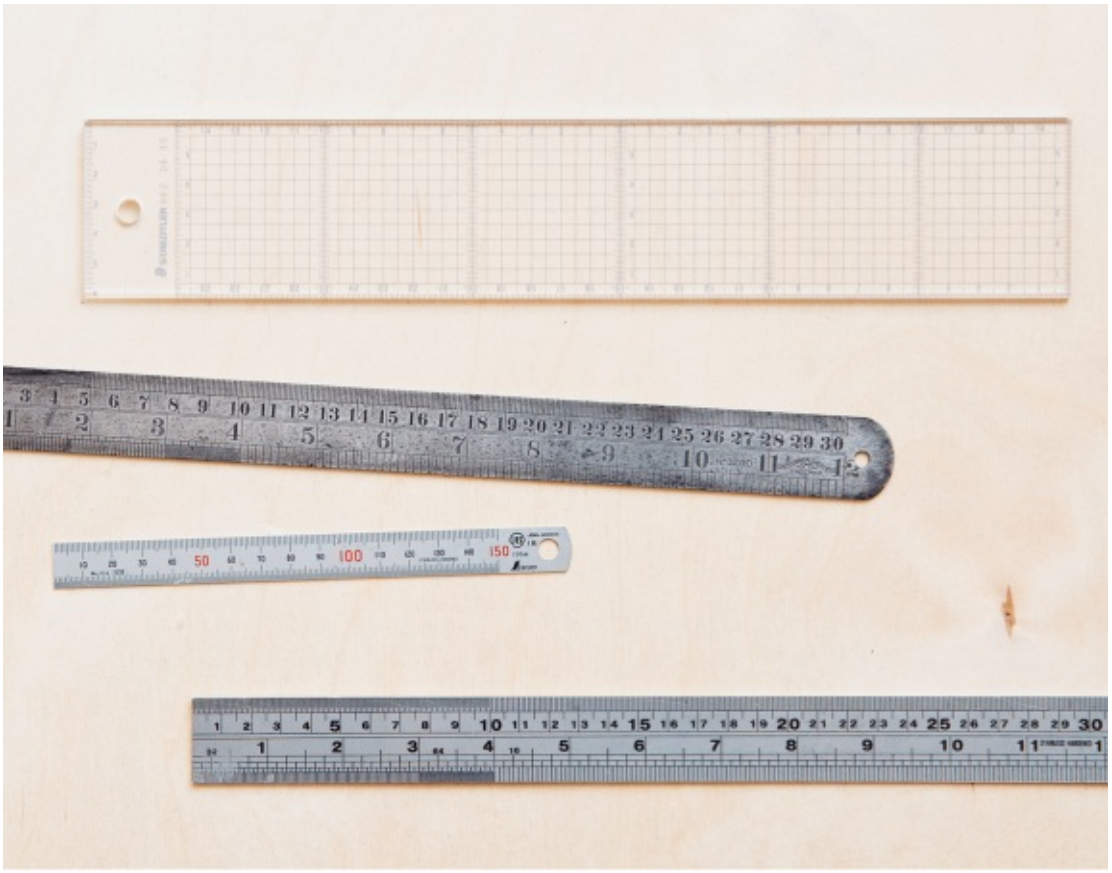
An awl is a tool comprised of a handle attached to a needle-like shaft, used to make sewing holes in paper or board. The awl that we use in our workshops has a round wooden handle and a 5.75cm (2¼in) needle. A pin vice (not pictured) is an awl-like tool with a handle and chuck into which you can attach interchangeable drill bits, needles or pins. If using a pin vice, we recommend using it with a size 18 bookbinding needle.

Brush

Brushes are used to apply glue or paste. You would ideally have a selection of brushes of different sizes and materials depending on your project. In our workshops, we typically use a hog-bristle bridled (bound round with wire) brush with a 3cm (1¼in) diameter and 15cm (6in) long wooden handle. As the brush gets worn down, the bristle can be trimmed and the bridling can be removed to release the bottom half of the bristle. If your brush has metal bridling or ferrule (the band that attaches the brush to the handle), it will discolour or rust over time, so be sure to keep your brushes rinsed and dried after use.

Clipt-point shoe knife

Most commonly used by cobblers, the clipt-point shoe knife is used by bookbinders for slitting paper. A handy, general-purpose knife for any studio. Alternatively, an old butter knife works well.



Ruler

Used for measuring and marking. We recommend having at least two steel rulers: one short (30cm/12in), one long (60cm/24in); and, if possible, one clear gridded ruler. Make sure to find relatively heavy rulers to reduce the likelihood of slipping.

Engineer’s square/try square

A tool used to mark and measure the accuracy of a right angle. Both the handle and blade of an engineer’s square is made of steel, whereas the handle of the try square is made of wood.

Set square, or metal triangle

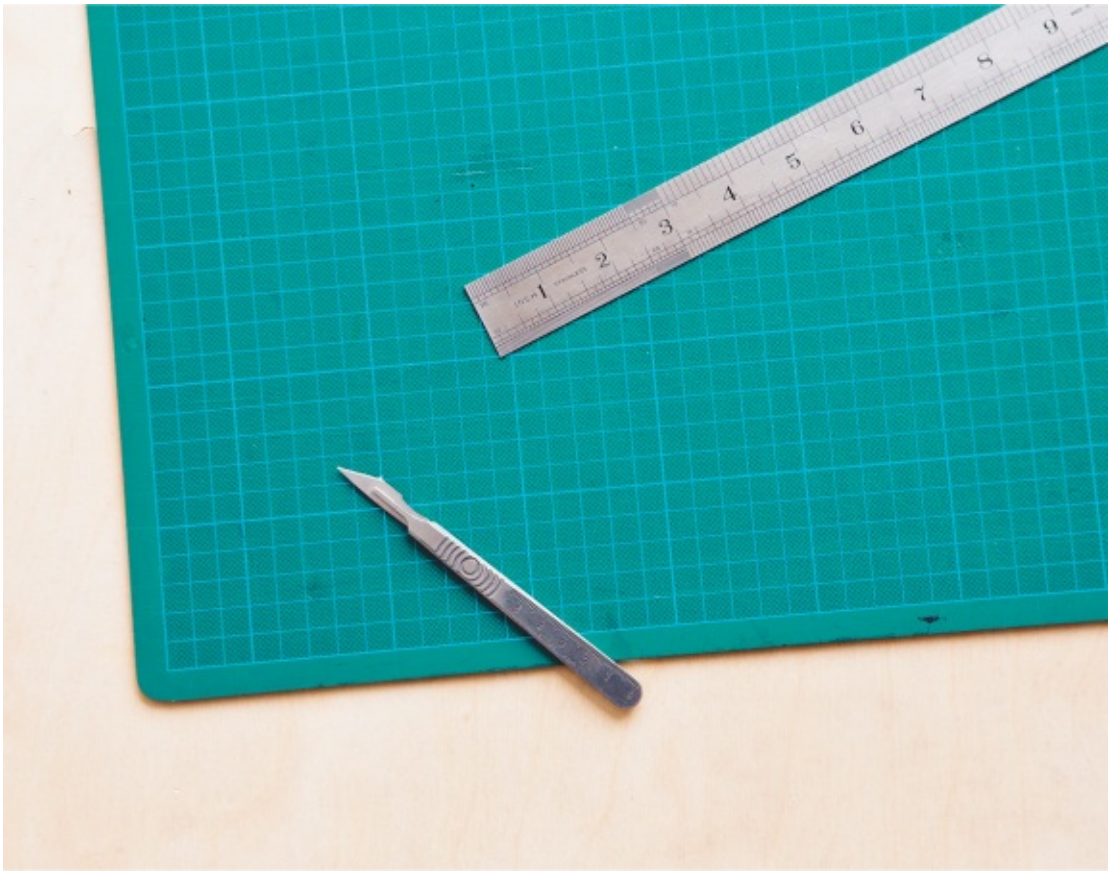
Steel or plastic set squares or metal triangles are used to mark and measure the accuracy of a 90-or 45-degree angle.

Spring divider

An engineering tool used in bookbinding to accurately measure and mark repetitive lengths. A 10cm (4in) divider is a good, all-purpose size to have, particularly for the purposes of this book (if you go on to make larger books, a correspondingly larger spring divider will be handy).

Scalpel

A tool made up of a handle and interchangeable blade used for fine cutting. There is a wide variety of blade shapes and sizes. The most commonly used scalpel in the bindery is a Swann Morton no.3 handle with 10A blade. Alternatively, you should find a scalpel or craft knife that is easy to handle, cuts with precision, and has replaceable blades.



Cutting mat

A perfect surface for cutting onto using a scalpel or sharp blade, these mats are self-healing and most have a grid, which can come in handy. Use a cutting mat that is much larger than the book you are working on; A3 or A2 is a good size. Cutting mats are readily available from art and craft shops.

Scissors/shears

In the bindery, scissors or shears are typically used for cutting thread and bookcloth – and paper is typically cut using a scalpel or shoe knife. A special pair of bookbinders' shears (originally designed for tailoring) has an upper blade with a blunted end for accurate cutting. Though nice to have, for the purposes of this book, any good-quality scissors or shears will do.

Needles

Once you create the sewing holes with an awl, needles are then used to sew the paper together to make a section. The sections are sewn together to create two-section or multi-section book bindings. The most commonly used in our bindery is the number 18 bookbinding and saddlers' harness needles. Both types of needles are an ideal size for use with linen thread, with a polished eye to prevent thread from breaking. Saddlers' harness needles have a blunt tip that prevents accidental piercing when sewing sections. Alternatively, you can use a darning or beading needle. Curved needles, sometime called mattress needles, are useful for special stitching techniques such as the **Link stitch binding** (see here).

Backing hammer

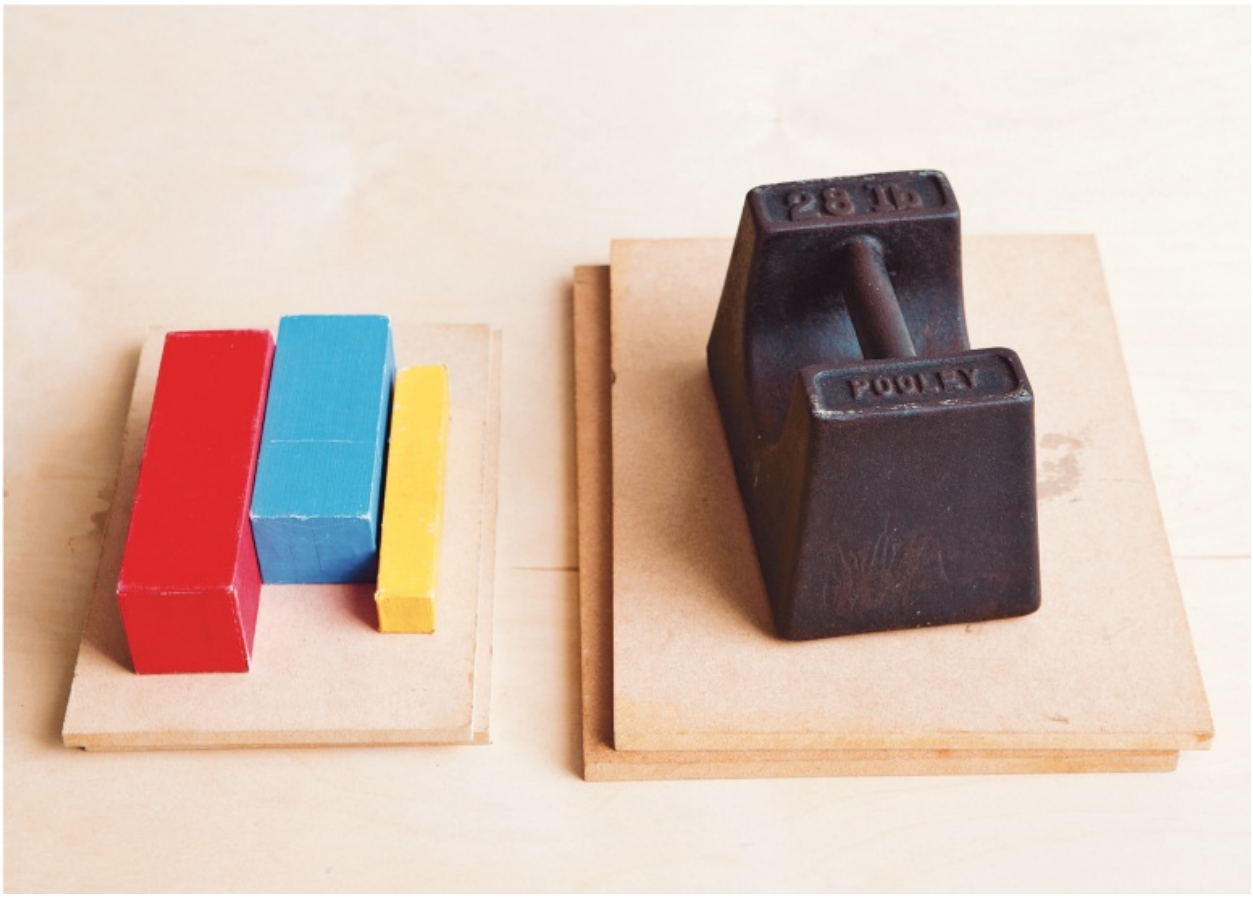
A hammer traditionally used by leather workers and cobblers. The head of the hammer is wide, and smoothly rounded and heavy. Alternatively, we recommend using a similar hammer with a clean, rounded head. A backing hammer is used for rounding the spine for a **Round-back case binding** (see here).

Bulldog or foldback clip

Used to secure together small stacks of paper or sections. Commonly found in art and office supply shops.

Weights and pressing boards

At the bindery we have nipping presses to press sections and books to help keep everything as flat as possible. In place of a nipping press, you will need some weights and a couple of pressing boards made of MDF or wood. The weights can be anything that is relatively small and heavy, such as a house brick, a jar or tin filled with pebbles, an old-fashioned iron or antique weights (easily found at antique markets or junk shops). Make sure that the weights do not leave a mark by wrapping them in clingfilm, paper, or bookcloth. The pressing boards should be perfectly flat and smooth, and at least 5cm (2in) bigger on all sides than the books you intend to make.


28 lb
POOLEY

Materials

When planning your book project, you should choose materials that not only work visually together, but that best utilise the nature and quality of each material. Like the tools in the previous chapter, the materials covered in this chapter all have special qualities and purposes that need to be considered in order to make the best book possible.

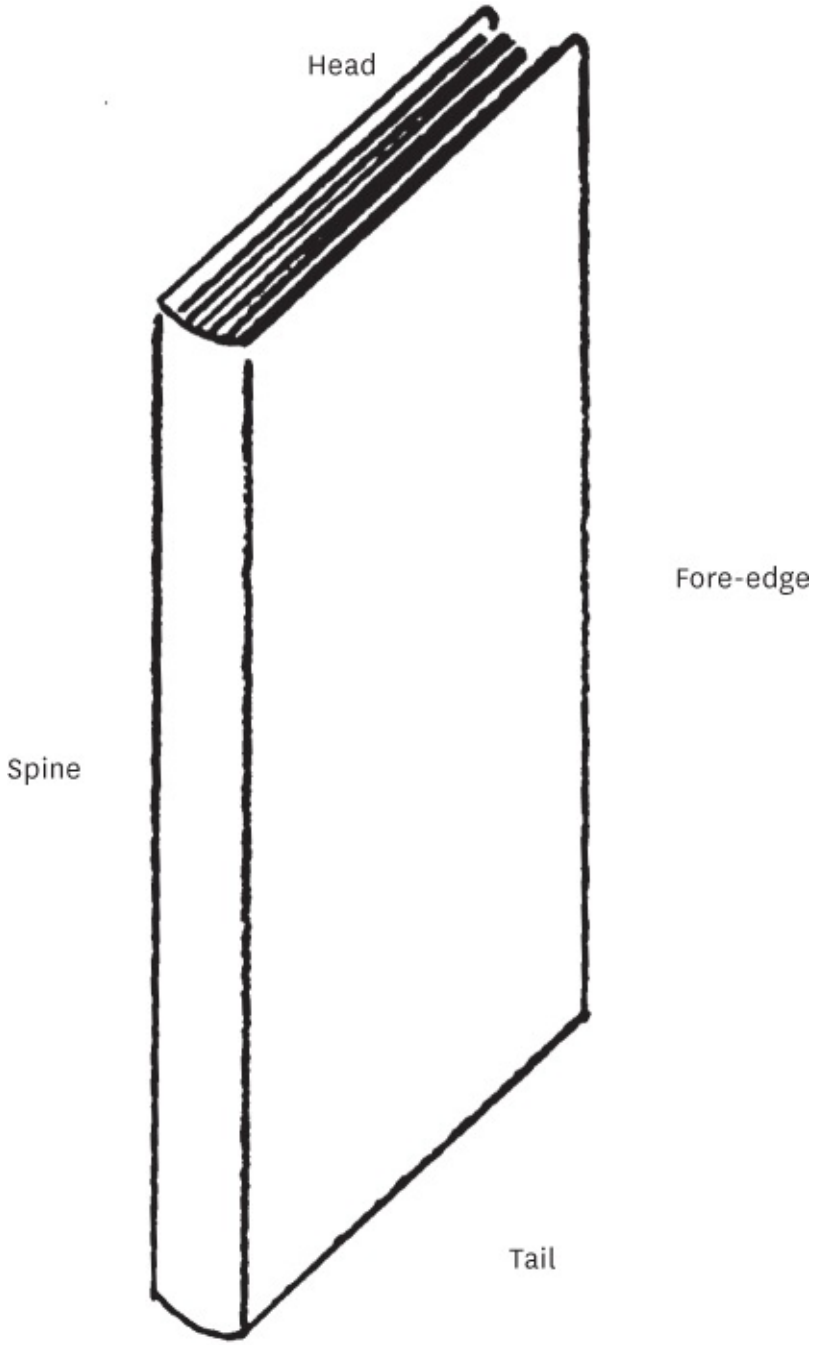
Where we can, we have chosen easy to find and readily available materials for the projects in this book. When starting out, we recommend not getting carried away with the finest and most expensive materials, but finding the right balance between quality and price.

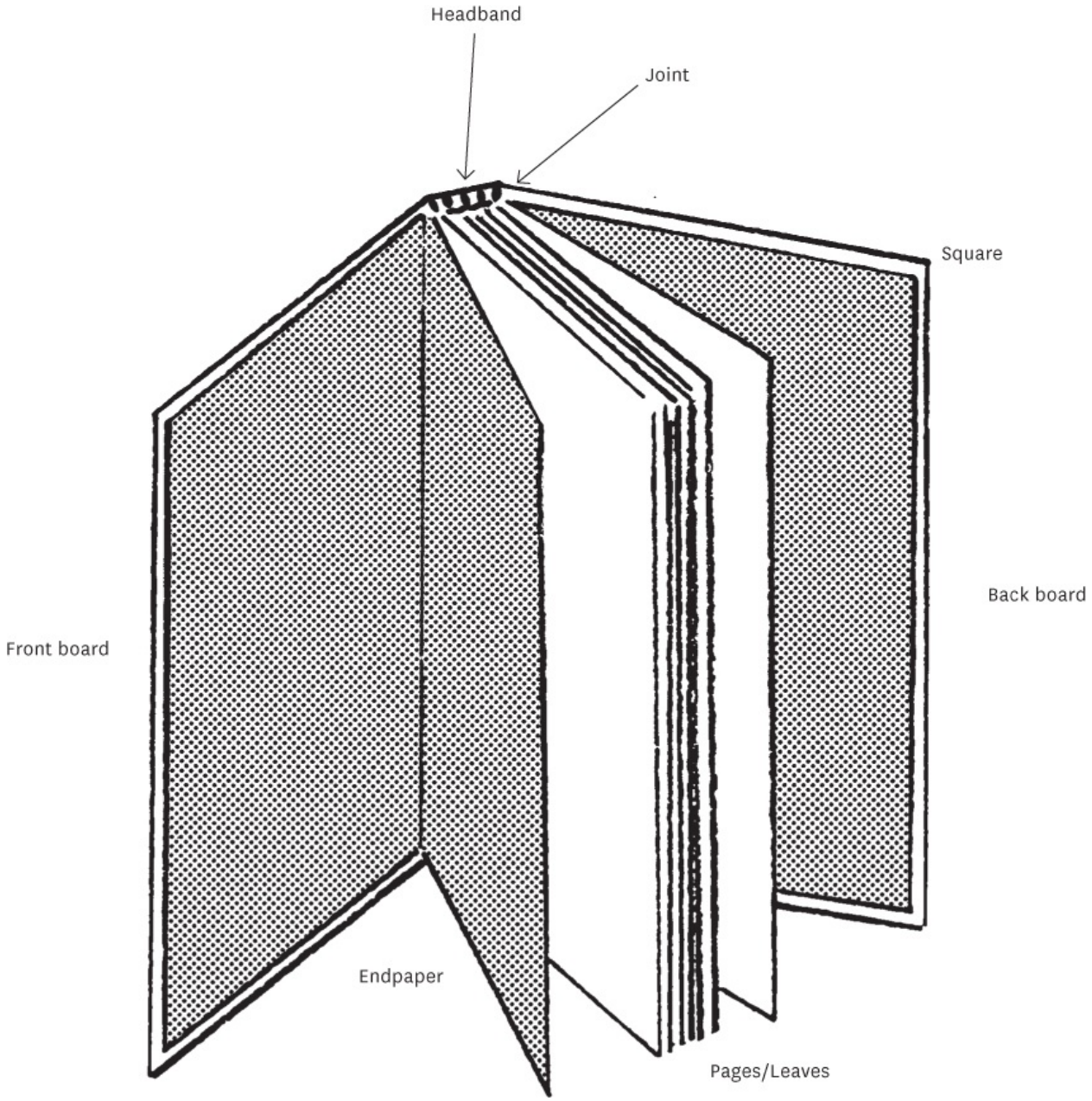
In this chapter, we will begin with an introduction to the anatomy of a book. You should familiarise yourself with the different parts of the book and their names, as this will come in handy in the subsequent chapters. Once we go over the basic terminology of a book, we will list and describe the uses and special qualities of different materials followed by a detailed look at size, weight and grain direction of papers.

Anatomy of a book

A typical book is made up of a front and back cover, pages, and a spine. You will need to learn some simple vocabulary if you need to describe a book in a little more detail, and especially when you start making your own books.

The illustration below describes the basic structure, and the illustration on the opposite page describes the different elements that make up a simple case-bound book (most of the terms will apply to other binding styles).


Head
Fore-edge
Spine
Tail


Headband
Joint
Square
Back board
Front board
Endpaper
Pages/Leaves

Bookcloth

Traditional bookcloth is made from a fabric that has a thin paper backing. The paper prevents adhesives soaking through onto the fabric side. Bookcloth comes in a multitude of colours and finishes. There are other cloths available, including buckram, which is a tough, plastic-filled cloth mainly used for library bindings.

Thread

Linen thread, a strong and durable thread, is most commonly

used in bookbinding. It is made from flax, and it comes in various colours and thicknesses, some common sizes being 18/3, 25/3, and 40/3 with 18/3 being thicker, 25/3 a good all-rounder, and 40/3 being the thinnest. You can find linen thread in spools or skeins (which we plait for easy access). When using linen thread in bookbinding, it is best to wax the thread by running it through a piece of beeswax once or twice before use. This reduces friction and kinks, and makes sewing easier (see here).

PVA

Polyvinyl acetate, or PVA, is a commonly used bookbinding adhesive. It's best to try to find PVA that is intended for bookbinding, which is often archival and much better quality than cheaper craft glues. Bookbinders use PVA as it dries clear and flexible, and is water-based. It is used to glue the spines of multi-section case bindings, for gluing cloth onto greyboard, and for laminating materials together.

Greyboard, millboard

Greyboard or millboard is used for case bindings, and comes in a range of thicknesses. We mainly use 1mm, 1.5mm, 2mm and 3mm thick greyboard. If you are concerned about the archival quality of your book, we recommend that you use millboard instead of greyboard, which is recycled and not acid-free. Millboard is acid-free, which means that it will not degrade over time, and comes in weights from 1.2mm to 3mm. Millboard is usually four or five times the price of greyboard, and should be reserved for special projects.

Pearsall's
"FILO-FLOSS"

Mull, fraynot calico

When making a case binding, the spine is lined with mull or fraynot calico for strength and flexibility. Mull is an open-weave fabric, starched and fairly thin. Fraynot is a type of calico fabric; it is thin and will not fray when cut (hence the name).

Barrier paper, plastic

Used to prevent moisture transferring from a glued surface of the book to other surfaces while drying. Prevents pages sticking together or cockling. We use a number of different barrier sheets – the cheapest and most common are sheets of acetate. You can also use wax paper or sheets of plastic cut from plastic wallets. The barrier sheet should be a little larger than the book at each side. Barrier sheets are often used together with blotting paper, which helps speed up the drying process.

Ribbon

If desired, we recommend using 3mm (⅛in) wide ribbon for bookmarks in case-bound books (see here). Available in all haberdashers and sewing shops.

Kraft and manila paper

Kraft and manila are both strong papers used for spine linings and spine stiffeners in case bindings. Kraft is thinner, usually around 90gsm, and is typically a brown colour (commonly used for wrapping parcels). Manila is a strong card, around 200gsm, and is good for spine construction and for stiffening thin cloth covers.

Headband

Traditionally, headbands (or endbands) were made from coloured silk or thread wrapped around a core made from cord

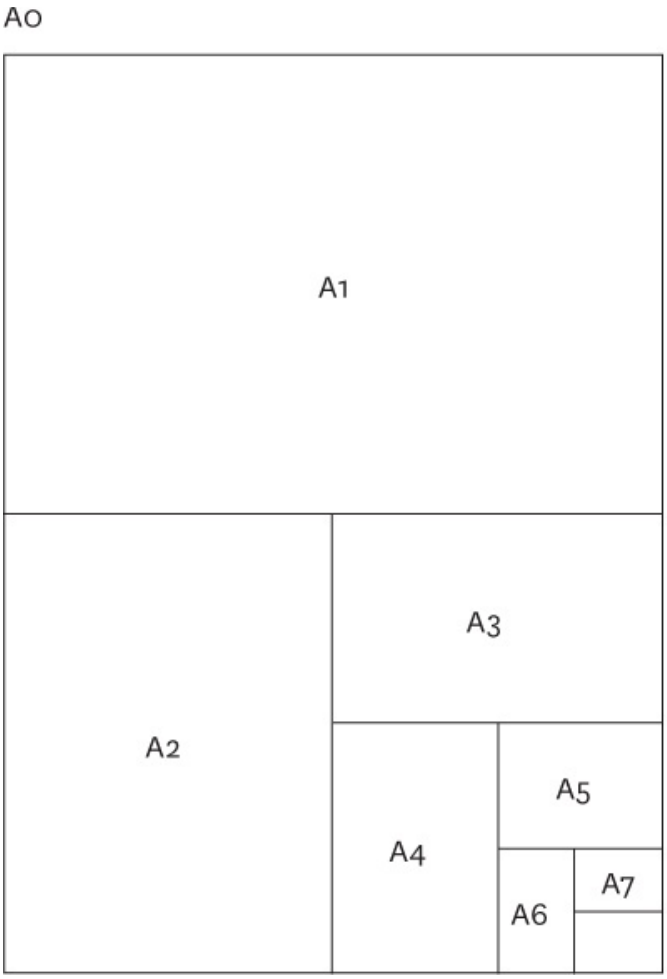
or leather, and sewn into the book at the head and tail of the spine. Headbands prevent wear around the head and tail of the book, but are primarily a decorative feature. For the purposes of this book, we recommend using machine-made headbands, produced by the reel, and cut to size to be glued onto the head and tail of the book (see here).

Waste paper

Keep a stock of wate paper handy for gluing. Old newspapers and magazines are fine.

Paper sizes

The ISO system is a series of paper sizes that is in common use in most countries of the world (with a notable exception of Canada and the US). The ISO system includes a number of different series of measurements: for the purposes of this book, we have followed the 'A' series of paper sizes, as it is the most common.



A0	841 x 1189mm (33 x 46¾in)
A1	594 x 841mm (23½ x 33in)
A3	297 x 420mm (11¾ x 16½in)
A4	210 x 297mm (8¼ x 11¾in)
A5	148 x 210mm (5¾ x 8¼in)
A6	105 x 148mm (4 x 5¾in)
A7	74 x 105mm (3 x 4in)

As you can see from the diagram above, all paper sizes of the ISO system have the same aspect ratio, which means that when a sheet of A1 size paper is folded or cut in half widthwise, the resulting half a sheet will have the same ratio of height and width as the sheet you began with.

Most shops will stock the A series of paper sizes. If you are unable to find A size papers, we recommend that you either prepare your own papers using the dimensions provided above, or use different size paper and adjust all other measurements accordingly. Measurements given in inches are approximate.

Paper weight

Paper weight is measured in gsm, or grams per square metre: if a square metre of 100gsm paper is cut down and weighed, it will weigh 100 grams. Gsm determines the weight of the sheet, not always the thickness. Some papers, particularly shiny or coated papers, can feel much thinner than an equivalent weight of an uncoated paper.

As a general rule, the pages of books (also known as text-weight paper, or text paper) can be anything from 60gsm (very thin) to 150gsm (thick). Try to balance the size of the book with the weight of the paper. You may want to use heavier, thicker paper for a large book, but the same paper will be much too thick for a smaller book.

Grain direction

Grain direction is the very first thing that you will need to know before you begin any bookbinding project.

Most papers that you will handle will be machine made, and all such papers have a grain direction. During the paper-making process, the paper (a thin layer of wet pulp at this point) is rolled out of the paper-making machine; the direction in which it is rolled out determines the direction in which the fibres will lay – or the grain direction.

The golden rule in making books is that the grain direction in all materials must run parallel to the spine of the book, and that includes text paper, endpapers, board, bookcloth and spine linings. Using paper with the grain direction going the 'wrong' way can result in endpapers cockling, and boards warping and not drying flat. The grain direction of a piece of paper dictates whether or not the paper will be suitable for the project, and how it will be folded and handled.

In the following chapter, we will guide you through determining the grain direction of a piece of paper.

grain direction of this book

Some techniques

There are a number of essential bookbinding techniques that every beginner bookbinder should become familiar with. In this chapter, we hope that you will begin to get a feel for how the tools and materials from the previous chapters come into play together. Some of the techniques will be quite simple, but others may take practice to master.

These techniques are a general guide based on our training and experience, but you will find that among practising bookbinders there will be variations in style. In addition, keep in mind that different materials will often behave differently – experimentation is key. As you are starting out, follow the steps carefully, and as you become more comfortable with the tools and materials, you may want to adapt the techniques to suit.

You can approach this chapter technique by technique, or you may want to begin one of the more simple projects, such as the **Three-hole pamphlet** (here), or **Concertina with decorative paper covers** (here), and refer back to to this chapter as techniques are introduced.

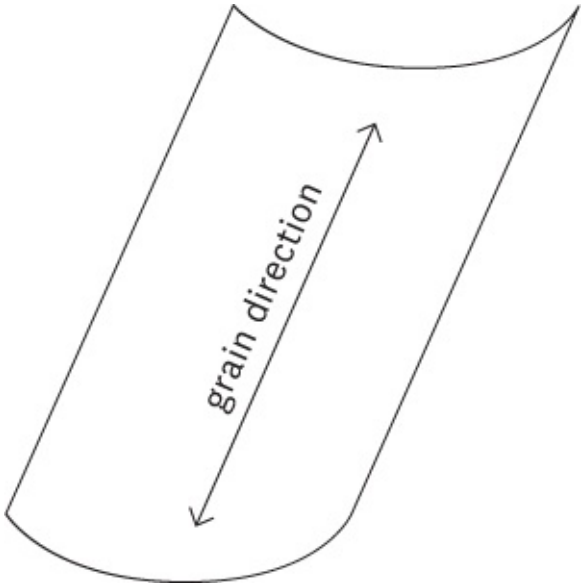
Grain direction

Before each project, you will need to check the grain direction of the paper that you will be using. Once you have familiarised yourself with the following steps, checking grain direction will become second nature.

Lay the sheet of paper flat on your work surface and lightly turn over one long edge over the other (1) – do not fold – and do the same with the short edge (2). You may want to do this a few times, alternating between the sides. As you do this, you

will notice that one way will be less resistant than the other. If the short-edge to short-edge fold is less resistant, this means that the paper is short-grain; if the long-edge fold is less resistant, this mean that the paper is long-grain.

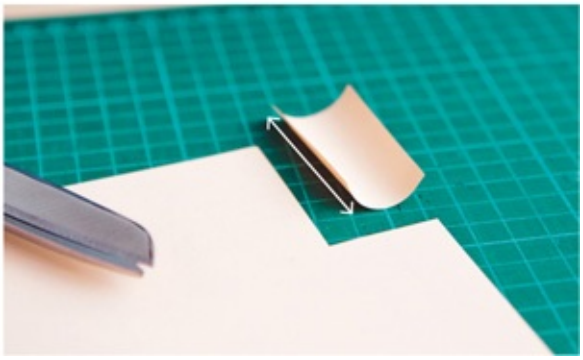
If you are still unsure about the grain direction after trying the first method, you can cut a small rectangle from the corner of the paper, moisten (lick) one side and the paper should curl. The paper will curl parallel to the grain direction, as shown by the arrow (below and 3). See here for more on grain direction.



1.

2.

3.



Folding

Folding paper may seem like a simple enough task, but be mindful that each fold should be as accurate as possible. If one fold is slightly askew, all subsequent folds will be even more so. Always use a bone folder (or Teflon folder) and be as careful as you can from the start, so you will have a better chance of avoiding big problems later on.

1.

Place the sheet of paper on a clean, flat surface. Fold the paper, aligning the corners exactly. Hold the paper firmly in place and press down gently in the middle of the folded edge (1).

2.

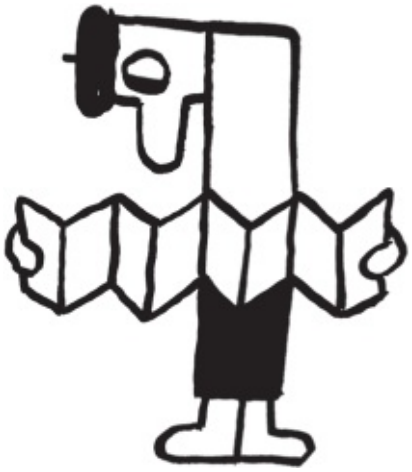
Fold from the centre outwards, smoothing with the bone folder to create a sharp crease (2).

Using a shoe knife

Shoe knives have slightly blunt, flat and flexible blades. They are not so sharp as to slice through paper, as you do with a scalpel, but sharp enough to tear through a fold in a sheet of paper. Used in conjunction with a bone folder, a shoe knife provides an easy way to fold and cut down large sheets of paper, and also when folding and slitting sections down to size.

- Fold paper, ensuring the fold is sharp and neat.
- The blade of the knife should be as flat as possible against the work surface.
- The blade and the edge of the paper should make a roughly 30-degree angle.

- Start slitting the paper from the bottom of the blade.
- Slit the paper in an upward and outward motion.



Cutting with a scalpel

Before cutting anything with a scalpel, you must ensure that the blade is very sharp. Cutting with a blunt blade will take longer, be much less accurate, and can be dangerous. Try to get into the habit of changing your blade regularly, particularly if cutting greyboard or similar materials.

- Always use a cutting mat.
- Measure and mark paper on both ends.
- Lay ruler between the two points, and press down hard to ensure the ruler doesn’t slip.
- Cut with scalpel and heavy metal ruler – be careful not to move the ruler.
- Check accuracy by placing one end against the other, ensuring both are the same width.

Trimming a book with a scalpel

This technique is intended for smaller books with one or two sections. For larger multi-section books, trim each section separately, or you will need access to a guillotine.

- Always trim the fore-edge first.
- Place the book on the cutting mat with the spine aligned to the grid.
- Place a metal ruler on the fore-edge of the book leaving a trim (check that the ruler is square against the grid of the cutting mat). Hold the ruler firmly in place (it is best to stand at this point).
- Using a scalpel with a new blade, carefully and gently cut

along the ruler, from head to tail of the book. It is important that you cut lightly (not applying too much pressure) and in multiple strokes, cutting a sheet or two with each stroke.
- Repeat the steps for the head and tail if needed. You should always cut from the spine to the fore-edge.

A section

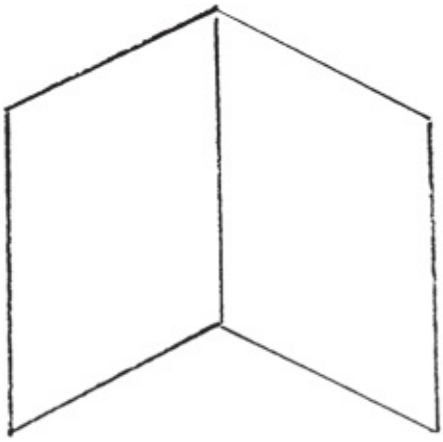
A section is the basic building block for most book structures. With a single section, you can create variations of a pamphlet, or even a multi-section case binding. A section is usually created by folding and slitting a single sheet of paper to create a loose structure with multiple pages. All you need to get started are a sheet of paper, a bone folder and a shoe knife.

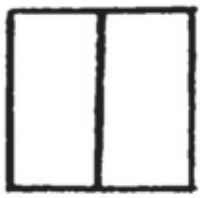
A section can also be made from multiple sheets of paper, each folded in half along the grain and stacked inside one another. This method is sometimes best if all you have to hand are smaller sheets of paper. The principles are the same, and you must ensure that the grain direction of the paper runs parallel to the spine. As a general rule, you should not fold a sheet of paper more than three times to make a section – otherwise, the section will be too thick to fold and will not lay flat.

The number of folds and pages in a section will depend on the size of the paper and grain direction.

Eight sections have been sewn together to create this book block.

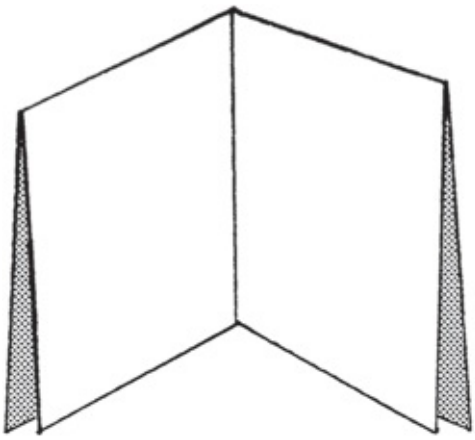
Section folds





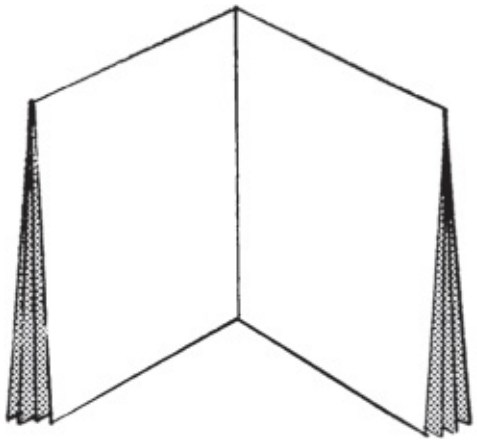
Folio
folded once,

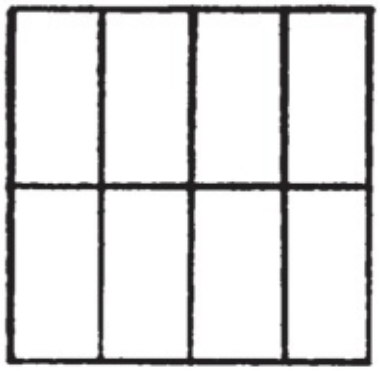
4pp (printed page)



Quarto

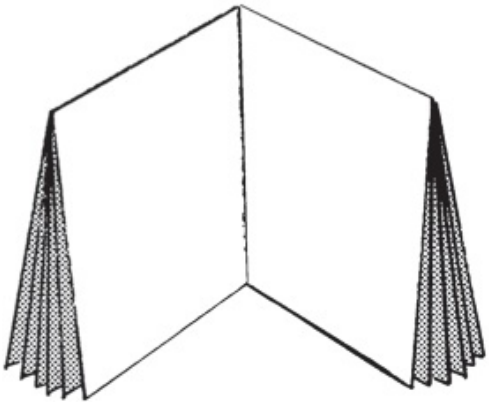
folded twice,
8pp (printed page)

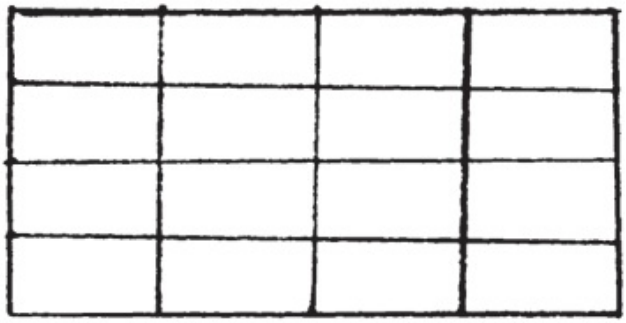




Octavo

folded three times,
16pp (printed page)





16mo (sextodecimo)
folded four times,
32pp (printed page)

Making a section

What you will need

Paper (A2 or larger, 80–130gsm, short-grain)

Bone folder
Shoe knife

1. Ensure your text paper is short-grain (see Grain Direction). Fold the paper in half, short edge to short edge. Make sure the edges are perfectly aligned, before making a sharp crease using your bone folder.

2. Slit the sheet two-thirds of the length along the fold using a

shoe knife. This helps to avoid ‘crow’s feet’ or wrinkles from forming at the corners of the folds.

3. Turn the folded sheet 90 degrees and carefully fold the sheet a second time.

4. As before, slit the sheet two thirds of the way using a shoe knife.

5. Turn the folded sheet 90 degrees and fold the sheet a third time.

6. Do not slit the sheet again. You now have an A5 size 16-page (16pp), or octavo, section.

Freeing the pages

When binding a book with sections, you will find that the pages of the finished book will still be attached at the head and fore-edge. No need to panic: you will want to keep the folds intact until you have finished binding the book – this ensures that your book stays organised and that your pages don't fall out of order during the binding process.

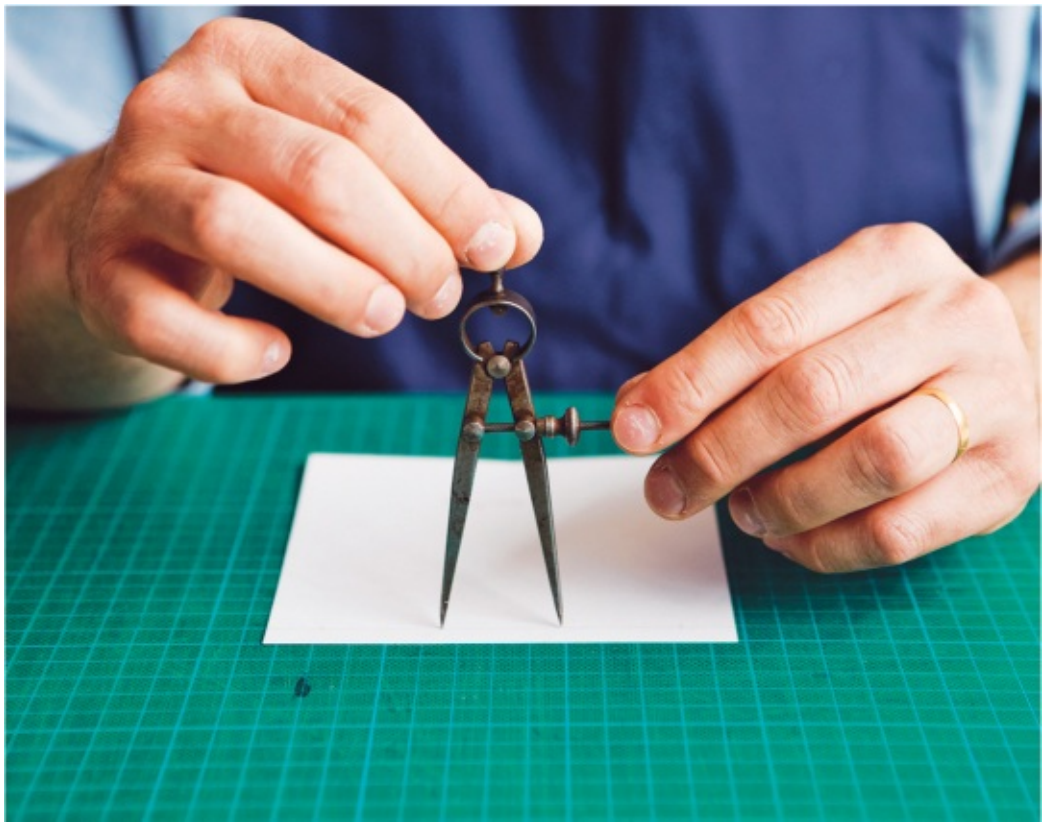
Once your book is bound, you can use your shoe knife to free the attached pages (as pictured) and finish the book or go on to the next steps.

Using a spring divider

Spring dividers are an indispensable tool in any bindery. They are commonly used when an accurate measurement needs repeating, or if a measurement needs dividing into a number of smaller increments evenly. A pair of dividers around 10cm (4in) in size is good to start with.

To use: holding the dividers at the head with your forefinger, pressing lightly, ‘walk’ the legs from one point to another. If the

gap needs to be made bigger, adjust the legs accordingly, and walk again. Repeat until you get the correct measurement. It may take a few goes to get the hang of using them, but once you have it will become easier to repeat in future.



Waxing thread

When using bookbinding linen thread it is best to wax it by running it through a piece of beeswax. This prevents the thread from becoming tangled and ensures it runs through the holes in the paper more easily.

To wax your thread, first cut the thread to size. Using a standard block of natural beeswax, pull the thread against the block to lightly coat it in wax. Once or twice should be enough – the thread shouldn’t be sticky with wax.

Gluing

Ensure that you use a glue or paste brush that is suitable for the size work you are gluing: a larger area will require a larger brush, otherwise you'll need to go back and forth between the glue container much more often.

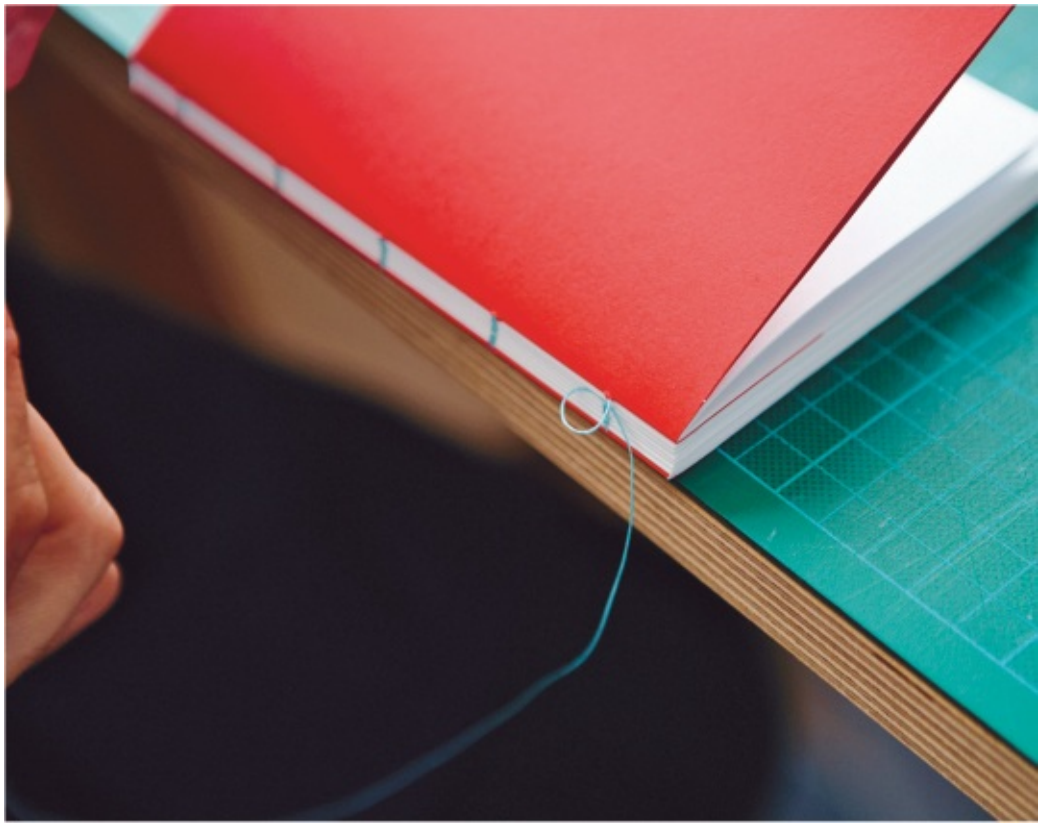
It is best to put your glue container onto a piece of waste paper bigger than the container to catch any drips. Before you start gluing, you'll need to 'charge' your brush to ensure that the bristles are saturated with glue. To do this, hold your brush firmly (in your fist like a dagger, not by your fingers like a paintbrush) and dip it into your glue pot until the glue reaches the top of the bristles. Dip a few times, wipe off the excess, and stipple the brush onto a sheet of waste paper to ensure the glue is absorbed into the bristles. Your brush is now 'charged' and ready to use.

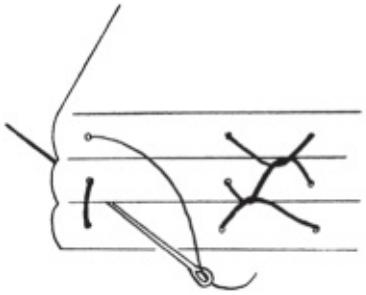
To 'glue-out' bookcloth or paper, start from the centre, working out to the edges in a stippling action, while holding your glue brush like a dagger. Be careful to control the curl of the material: as the glue is water-based, the bookcloth or paper will absorb the moisture and begin to curl with the grain direction. Work quickly, especially in warmer weather when the glue can dry before you are ready to attach the board.

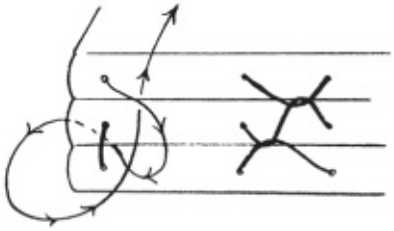
When gluing papers or cloths to cover greyboard, you must always glue-out the thinner material first. This gives the material time to expand and ensures that the boards warp less when drying.

Pressing and drying

Once boards have been covered with bookcloth or paper, carefully rub down the boards to ensure that there are no air bubbles or gaps at the edges. Rub down over a sheet of clean waste paper to prevent the cloth from being burnished (marked) by the bone folder. Once both sides of the boards have been rubbed down, leave to dry between two pressing boards and under a weight (or in a nipping press) for at least twenty minutes, or ideally for a couple of hours – otherwise, the boards will warp from the moisture of the PVA.







Kettle stitch

A kettle stitch is sewn at the sewing stations closest to the head and tail of the book block to secure two sections together – this is only done for book blocks with three or more sections, and after the addition of a third section.

As you come out of the sewing station closest to either the head or tail, insert the needle and thread in between the first and second section and stations directly below. Pull the needle and

thread out of either the head or tail, which will create a loop at the spine. Go up and through the loop and pull just tight enough to create a knot.

Once you have tied your kettle stitch, you can resume sewing. If tying a kettle stitch at the last section in a book, tie another kettle stitch and trim the end of the thread to finish.

The Books

In the following chapters, we will guide you through the steps of creating six distinctive styles of books, along with their variations. We have organised the projects based roughly on the levels of complexity: the first project, **Pamphlets: Three-hole pamphlet**, is the least complex; the final project, **Multi-section case binding: Round-back case binding**, is the most complex. You should follow the order of the projects at your discretion, but we do recommend that before you start one of the **Multi-section case binding** projects you try your hand at either a **Single-section case binding**, or one of the **Exposed spine binding** projects.

This is by no means a complete list of book styles or structures. Most of these projects are based on bindings that we teach in the workshops that we regularly host at the Centre (more information on our workshops on here). We believe that the following projects form a solid foundation for anyone interested in bookbinding.

Once you acquaint yourself with the different binding styles and structures, we encourage you to start thinking about how different books can complement different uses and content – you may find a whole new appreciation for books that you might have otherwise overlooked.

Pamphlets
Three-hole pamphlet
Five-hole pamphlet variation
Double pamphlet
Dos-à-dos (back-to-back) pamphlet

Concertinas
Concertina with decorative paper covers

Stab bindings
Four-hole stab binding (Yotsume toji)
Four-hole stab binding with a hard cover

Slim case bindings
Single-section case binding
Double-section case binding

Exposed spine bindings
Link stitch binding
French link stitch

Multi-section case bindings
Flat-back case binding
Round-back case binding

Pamphlets

The pamphlet, sometimes called chapbook, is the simplest kind of bound book. A pamphlet, at its most basic, is a section (see here) and a cover bound together. You will have no doubt come across a similar book structure – albeit, stapled – in an office, school, or your postbox. The binding is a quick, inexpensive and efficient way of distributing information, and has been the binding of choice for zine makers, small-press publishers, and even political organisers.

For most people, the pamphlet will be their very first introduction to bookbinding. With the right choice in materials, and hand bound with linen thread, the pamphlet can be an elegant way to bind a notebook, book of writings, or an artist book.

Simple to construct, the pamphlet binding has countless variations. In this chapter, we will guide you through four different variations: a three-hole pamphlet, a five-hole pamphlet, a double pamphlet, and a dos-á-dos (or back-to-back) pamphlet. Once you are comfortable with the steps, the pamphlet binding provides a great opportunity to play around with materials and scale.

Three-hole pamphlet

Materials

See here for a note on paper sizes.

Text paper: Two sheets of A2 paper. No thinner than 80gsm and no thicker than 130gsm, short-grain.

Cover: An A4 sheet of colourful or decorative paper thicker than your text paper. No thinner than 100gsm and no thicker than 175gsm, short-grain.

Waste paper.

Linen thread, 18/3 or 25/3 thickness, approximately 60cm (24in).

Tools

Bone folder
Shoe knife
Scissors or shears
Mechanical pencil
Metal ruler
Awl
Bookbinding needle
Scalpel
Cutting mat

How to make the book

1. Using your text paper, prepare two octavo sections (16 pages each – see here), and combine the two sections by inserting one inside of the centre fold of the other. This will give you a 32-page section.

2. Fold the cover paper in half lengthwise, or short edge to short edge. Make sure the edges are perfectly aligned before making a sharp crease using your bone folder.

3. Make a sewing station template: take a piece of waste paper and cut to the same height as your section and roughly 60mm (2½in) wide.

4. Make three marks on the waste paper as illustrated: one at the centre (find the centre by folding the sheet in half, lengthwise), and two at either end at around 30mm (1¼in) in from the head and tail. The sewing stations will be at these three points.

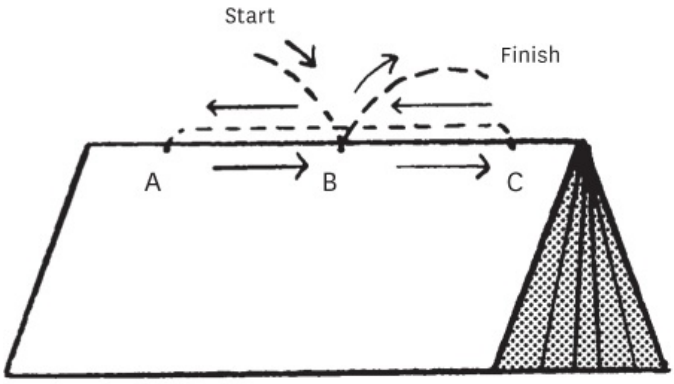
5. Place the section inside the cover as shown.

6. Lay the book on the work surface with the spine edge aligned to the edge of the work surface. Open the book to the centre

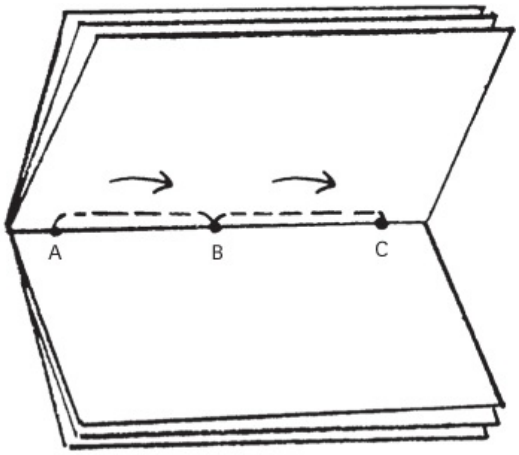
to the edge of the work surface. Open the book to the centre fold and place the sewing station template along the fold. Using an awl or pricker, make holes at each of the sewing stations.

7. With a needle and piece of linen thread approximately 60cm (24in), or two and a half to three times the height of the book, begin stitching the section from the centre hole (B) as illustrated in the diagram, right.

Sewing a three-hole pamphlet



View from outside pamphlet



View from inside pamphlet

1. From the outside in, insert needle and thread at station B, leaving a tail end of approximately 3cm (1¼in).

2. Bring the needle out through station C.

3. Go in again at station A, and out through station B.

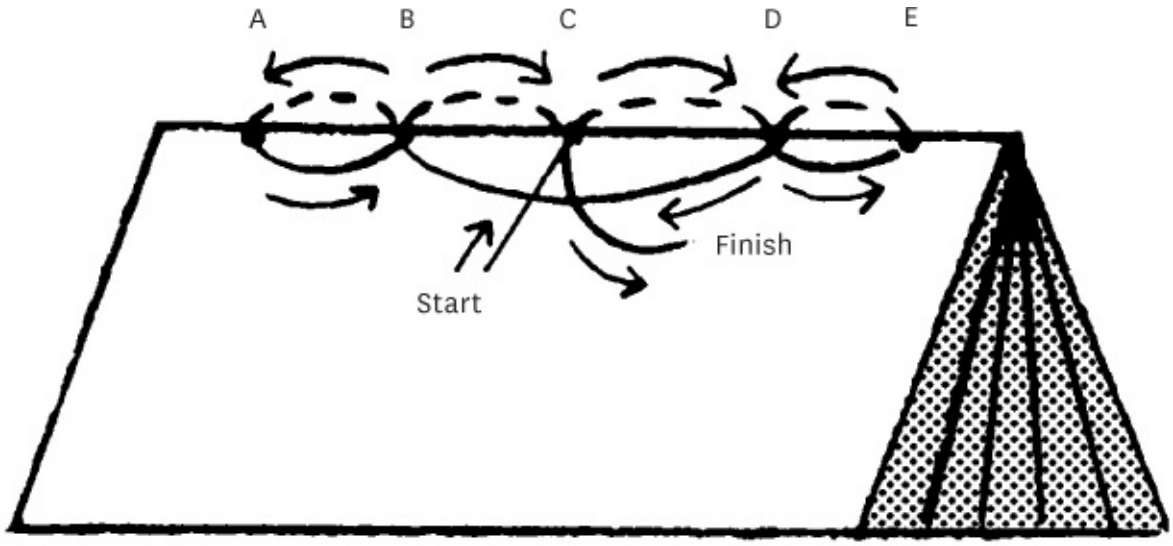
4. Tie the two ends of thread together with a reef knot and trim any excess thread. Make sure that the two ends are on either side of the thread running from A to C, so that the knot is firmly in place.

If you begin your sewing from the outside of the section, your knot will be on the outside, and vice versa.

Once the book has been bound, close the book, place a sheet of waste paper over the spine and go over the spine with a bone folder. If desired, trim the book (see here).

For decorative reasons, or if a three-hole stitch is not quite strong enough, you can create hand-stitched pamphlets using five, seven, nine or any odd-numbered number of stitching holes. In the diagram below, sewing is started from the inside, which means that the knot will be on the inside.

Sewing a five-hole pamphlet



1. From the inside out, insert needle at station C, leaving enough thread on the inside to tie off at the end (approximately 3cm/1¼in).

2. Bring the needle in through station D.

3. Go out through station E, and then in through D again.

4. Go out though station B (skipping station C) and then in through station A.

5. Go out again at station B, and finally back through station C.

6. Tie the two ends together with a reef knot and trim any excess thread.

Double pamphlet

Materials

See here for a note on paper sizes.

Text paper: Eight sheets of A4 paper, four sheets each of two different colours. No thinner than 80gsm and no thicker than 130gsm, long-grain. Any common copier paper will be fine for this project, but it must be long-grain.

Cover (dust jacket): A sheet of colourful or decorative paper thicker than your text paper. No thinner than 100gsm and no thicker than 175gsm. Approximately 148 x 420mm (5¾ x 16½in).

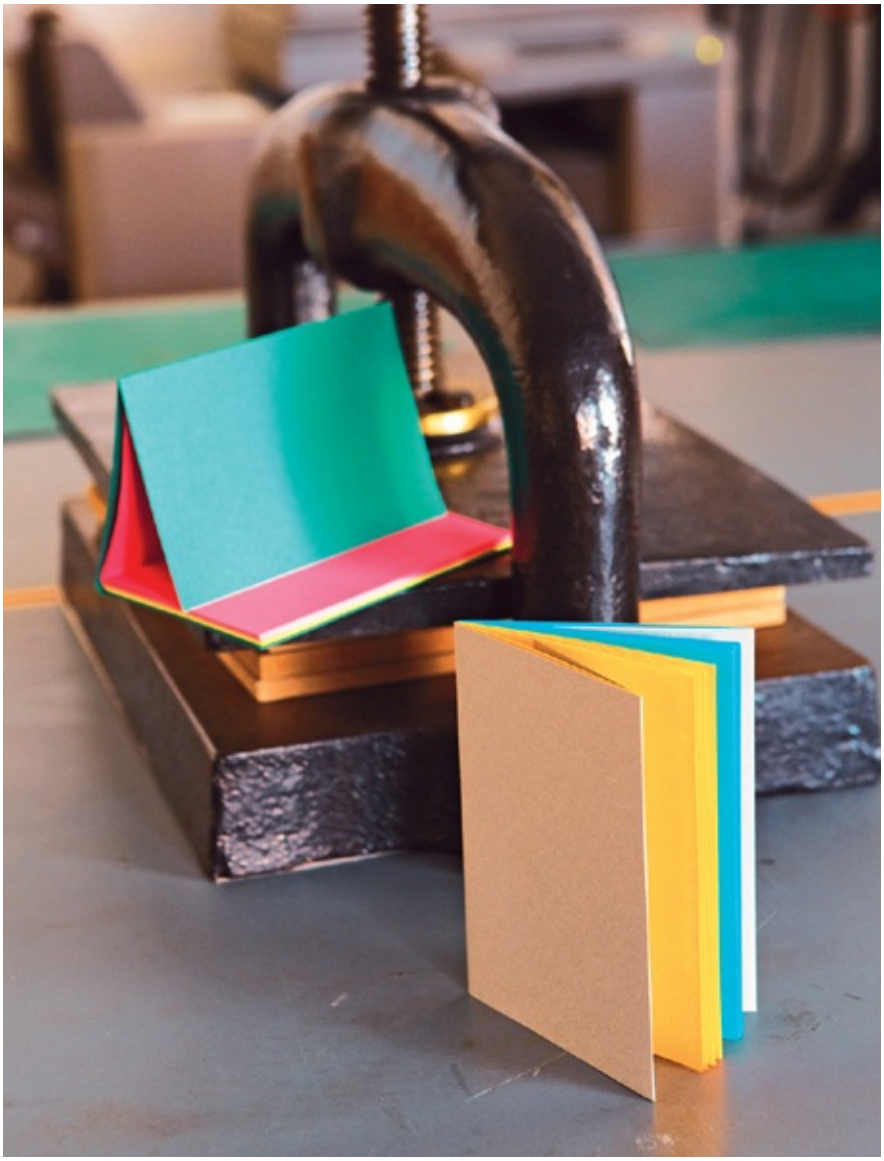
Waste paper.

Linen thread, 18/3 or 25/3 thickness, approximately 45cm (17¾in).

Tools

Bone folder
Shoe knife
Scissors or shears
Mechanical pencil
Metal ruler
Awl
Bookbinding needle

Scalpel
Cutting mat
Spring divider

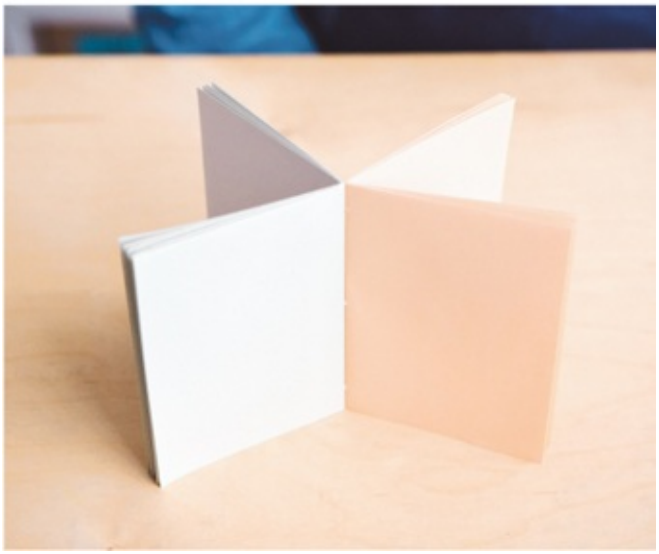


How to make the book

The pamphlet

1. With the eight sheets of A4 paper, prepare two sections, one of each colour (see here).

Because we are using a smaller, long-grain sheet of paper, each sheet will make an A6 size eight-page section or quarto (here). Combine the four eight-page sections of each colour into one, to create two 32-page sections (section 1 and section 2).



2. Make a sewing station template: take a piece of waste paper and cut to the same height as your section. Make three marks on the waste paper: one at the centre (find the centre by folding the sheet in half, lengthwise), and two at either end at around 15mm (⅔in) in from the head and tail (see here).

3. Lay section 1 on the work surface with the spine edge aligned to the edge of the work surface. Open the book to the centre fold and place the sewing station template along the inside fold. Using an awl or pricker, make holes at each of the sewing stations. Do the same with section 2 (see here).

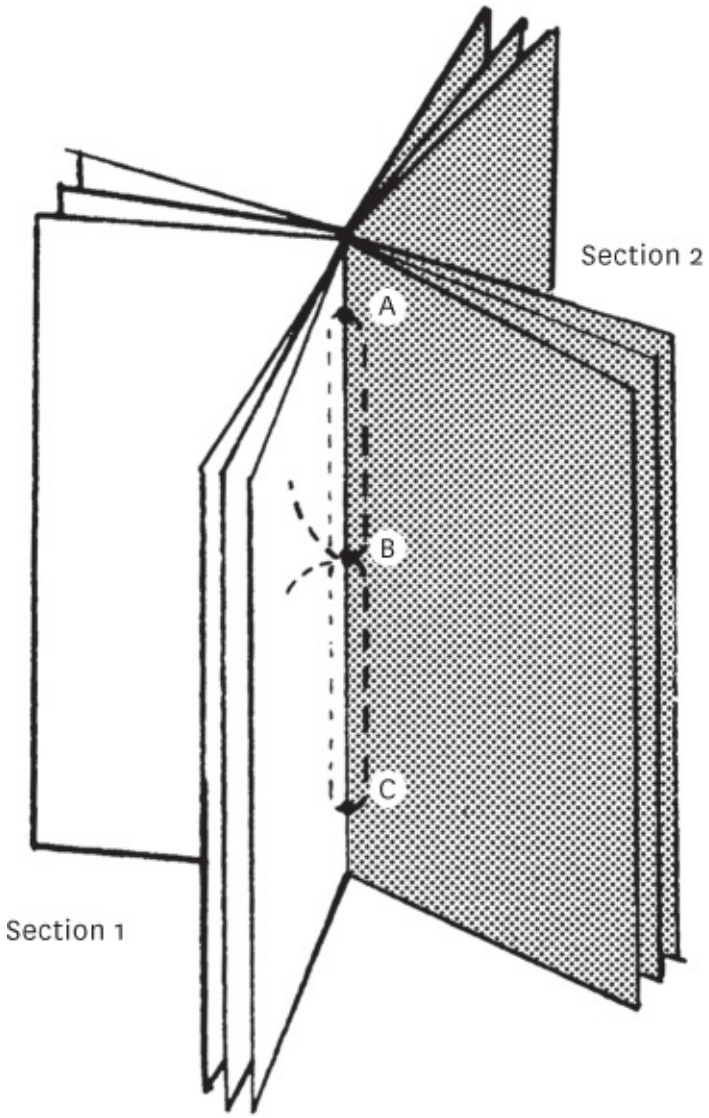
4. On your work surface, stand each section on its tail, with the spines touching, forming an 'X,' looking from above, as pictured.

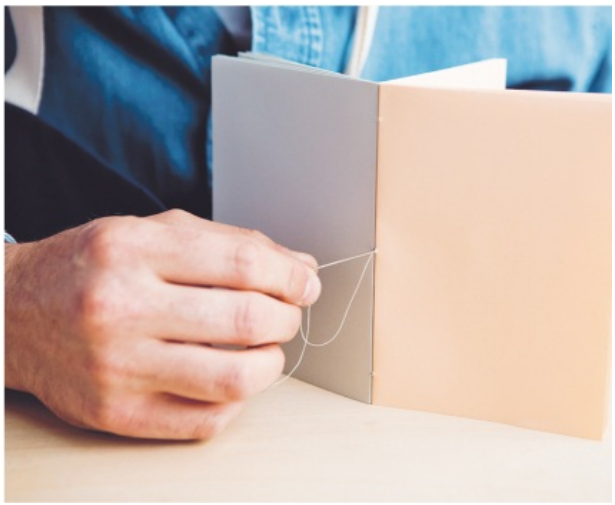
Sewing a double pamphlet

1. With a needle and piece of linen thread, approximately 45cm (17¾in), begin sewing the two sections together as illustrated.

2. Begin by inserting needle and thread from the inside of section 1, sewing station B, and coming out of section 2, sewing station B, leaving a tail-end of approx 30mm (1¼in). Sew the sections as you would sew a **Three-hole Pamphlet** (here), but ensure that you sew from one section to the other at each station. You should end up with the two ends of thread on the inside of section 1.

3. Tie the two ends of thread together with a reef knot and trim any excess thread. Make sure that the two ends are on either side of the thread running from A to C, so that the knot is firmly in place.


Section 2
A
B
C
Section 1



4. Once the sections have been bound, close the book so that sections 1 and 2 are on top of each other and go over the spine with a bone folder. If desired, trim the sections following the steps described on here.

The cover (dust jacket)

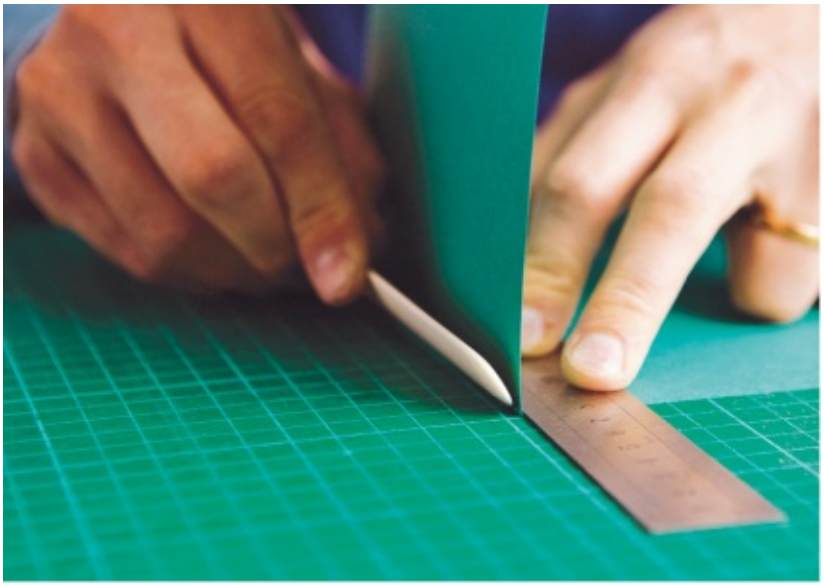
The cover (dust jacket)

1. Cut a piece of covering paper the same height as your section, and roughly the width of four sections.

2. Fold in half lengthwise, short edge to short edge.

3. Measure the spine thickness with a divider (see here) and transfer and mark the measurement on the head and tail of the covering paper against the fold from Step 2.

4. Place a metal ruler along the two marks from Step 3, and with a spring divider, score a line from head to tail of the covering paper as pictured.



5. Fold the cover along the two score lines by folding against your metal ruler. This will form the spine of the cover.

6. Insert the text block into the folded cover, with the spine of the text block against the spine of the cover – they should fit together snugly.

7. Holding the text block firmly in place, lift up the cover, and with a bone folder mark where the fore-edge lies on the cover

with a bone folder mark where the fore-edge lies on the cover at the head and tail.

8. Move the text block aside. With a metal ruler and bone folder, score a line between the two marks.

9. Make a fold against the ruler. Trim off approximately 5mm (¼in) from the flap. The end of the inner flap should be short of the spine by approximately 5mm (¼in).

10. Turn the book over and repeat Steps 7–9 to finish.

Dos-à-dos (back-to-back) pamphlet

Materials

See here for a note on paper sizes.

Text paper: Eight sheets of A4 paper. No thinner than 80gsm and no thicker than 130gsm, long-grain. Any common copier paper will be fine for this project, but it must be long-grain.

Cover: A sheet of coloured or decorative card stock, no thinner than 150gsm and no thicker than 300gsm, short-grain. Approximately 148 x 315mm (5¾ x 12½in).

Waste paper.

Linen thread, 18/3 or 25/3 thickness, approximately 30cm (12in).

Tools

Bone folder
Shoe knife
Scissors or shears
Scalpel
Cutting mat
Metal ruler
Mechanical pencil

Bookbinding needle

How to make the book

1. With the eight sheets of A4 paper, prepare two sections (see here).

Because we are using a smaller, long-grain sheet of paper, each sheet will make an A6 size eight-page section or quarto (here). Combine four eight-page sections into one, to create two 32-page sections (section 1 and section 2).

2. For the cover, cut a piece of card stockthe same height and three times the width of the sections. This should be approximately 148 x 315mm (5¾ x 12½in).

3. Place the cover, lengthwise and perfectly squared, onto the cutting mat. Place section 1 on top of the cover. The fore-edge should be 5mm (¼in) in from the short edge of the cover, and perfectly aligned. Place the metal ruler on the cover in line with the spine of the section.

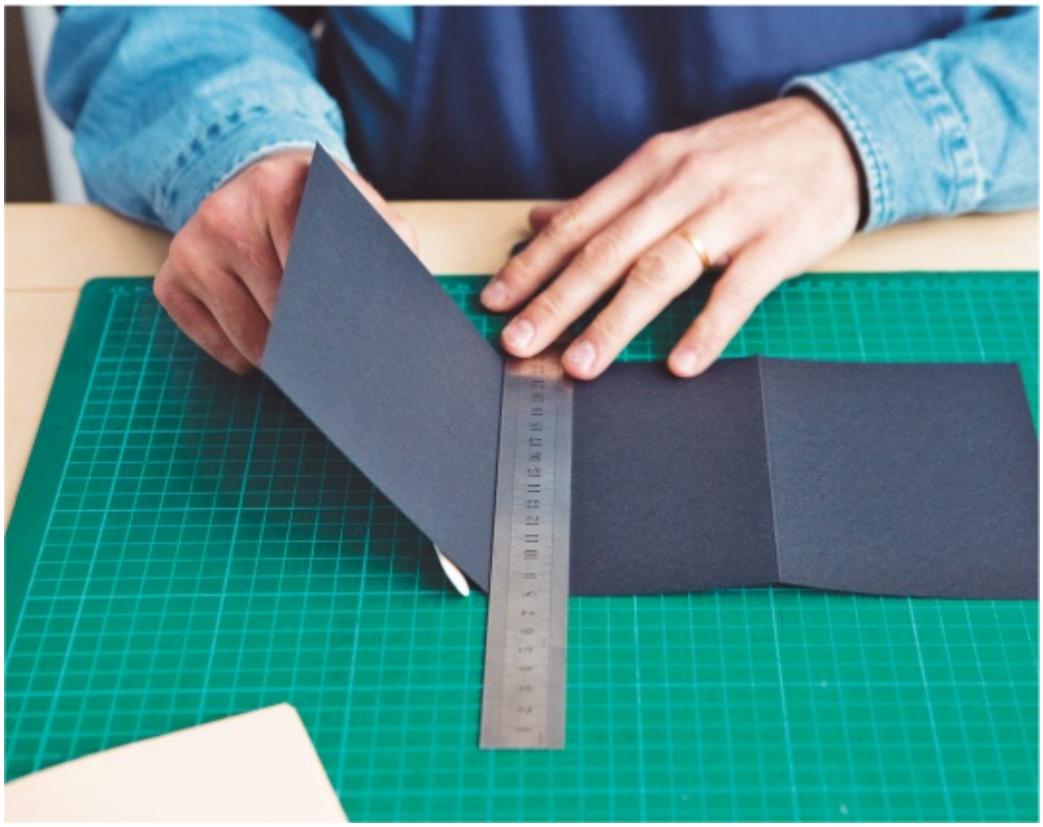
4. Take away the section without moving the metal ruler. Using a bone folder, score the card along the metal ruler (where the spine of the section was), and create a fold along the score (fold 1).

5. Place the section back onto the cover, with the spine edge

aligned to fold 1.

6. Place the metal ruler on the cover in line with the fore-edge of the section, as shown.

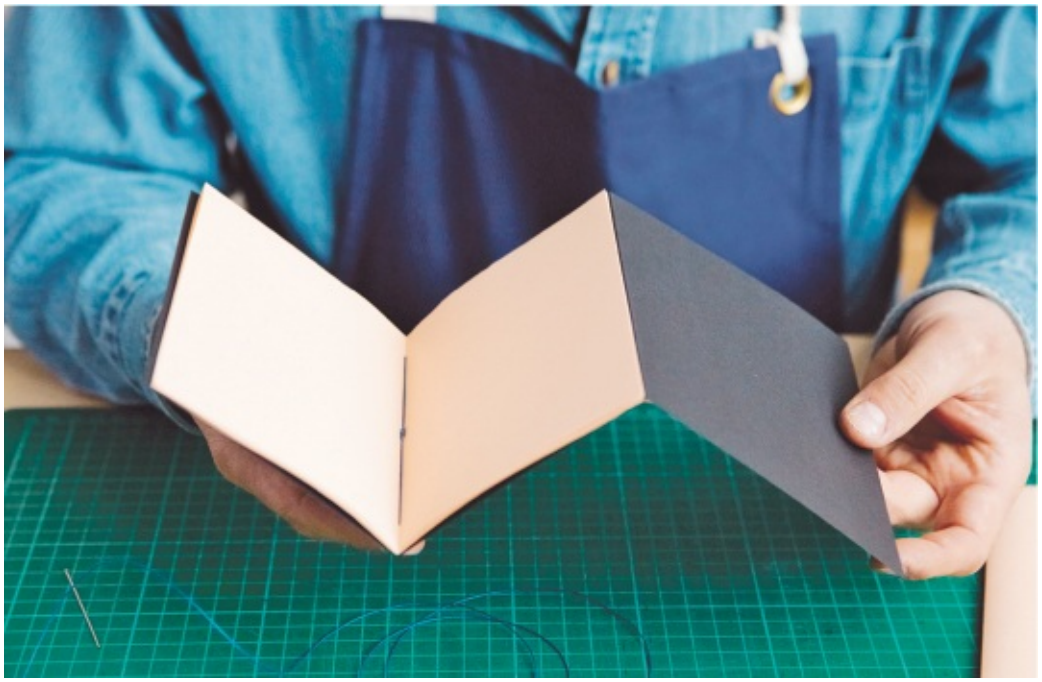
7. Take away the section without moving the metal ruler. Using a bone folder, score the card along the metal ruler (where the fore-edge of the section was), and create a fold along the score (fold 2).



8. You will at this point have a ‘Z’ shape cover.

9. Make a sewing station template: follow the steps on here. You will need three marks, one at the centre (find the centre by folding the sheet in half, lengthwise), and two at either end, at around 15mm (⅔in) in from the head and tail.

10. Place section 1 inside fold 1 and stitch the section into the cover following the diagram for sewing a **Three-hole pamphlet** on here.



11. If you begin your sewing from the outside of the section, your knot will be on the outside, and vice versa (shown here on

the inside).

12. Place section 2 inside fold 2 and stitch the section into the cover as above.

13. Once each section has been stitched, you will be left with two spine-edges and two fore-edges. Trim the covers so that the fore-edges and spine-edges are square.

Concertinas

Concertinas, also known as Accordion books, or Leporello books, are one of the most simple book structures, requiring neither needles or thread. By creating repeated folds on a strip of paper, you're left with an elegant book that leaps into something sculptural.

Folding the pages of a concertina may seem like common sense, but be sure to pay close attention to each fold and the order of the steps. A slightly uneven fold can eventually lead to the whole book being askew.

Taking advantage of the free-standing unbound structure can lead to playful and unexpected results. In Victorian times, the books were popular souvenirs, with a panoramic view of a locale printed or hand-painted across the full length of the concertina. A concertina, especially when made with heavier paper, can stand on its tail when open, offering a unique way to display the book and its content.

Concertina with decorative paper covers

Materials

See here for a note on paper sizes.

Text paper: A strip of plain or coloured paper, no thinner than 150gsm and no thicker than 250gsm, short-grain. Approximately 150 x 700mm (6 x 27½in).

Covering paper: Two sheets of colourful or decorative papers no thinner than 100gsm and no thicker than 175gsm, long-grain. Approximately 150 x 200mm (6 x 8in).

Greyboard: two pieces of 2mm thick greyboard, long-grain. 154 x 92mm (6 x 3⅔in).

PVA glue.

Waste paper.

Blotting paper.

Tools

Bone folder
Boards/weight
Mechanical pencil

Paste or glue brush
Metal triangle or set square
Scissors or shears
Scalpel
Cutting mat

How to make the book

The concertina

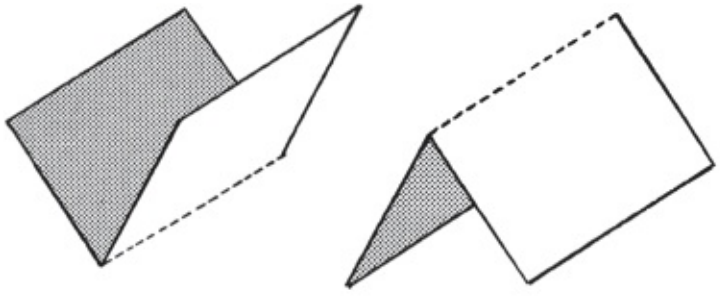
1. Fold the text paper in half lengthwise. Make sure the edges are perfectly aligned, before making a sharp crease (fold 1) using your bone folder. Accuracy is important at this stage, as if one foldis slightly askew, it will affect all subsequent folds.

2. Turn the paper and place fold 1 on your left. Follow the diagrams on the facing page, and continue to fold the concertina. Fold the top layer in half (fold 2). This will create your first mountain fold (see below). At this point, you will have a mountain fold at fold 2 and a valley fold at fold 1.

3. Invert fold 2, transforming it into a valley fold.

4. Fold the top layer in half to create fold 3. You will have the start of a zig-zag.

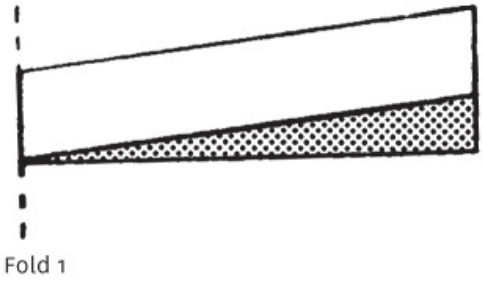
5. Create fold 4 by bringing fold 2 to fold 1.

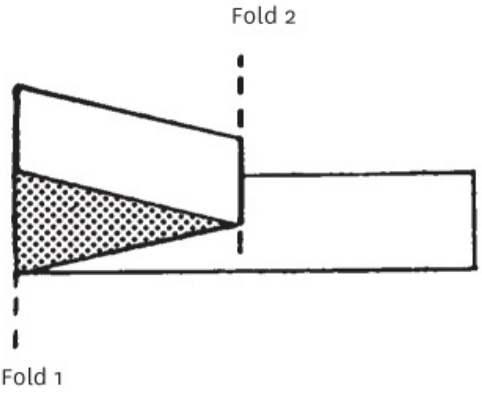


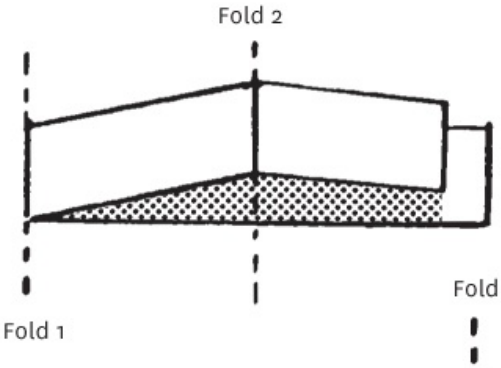
Valley fold

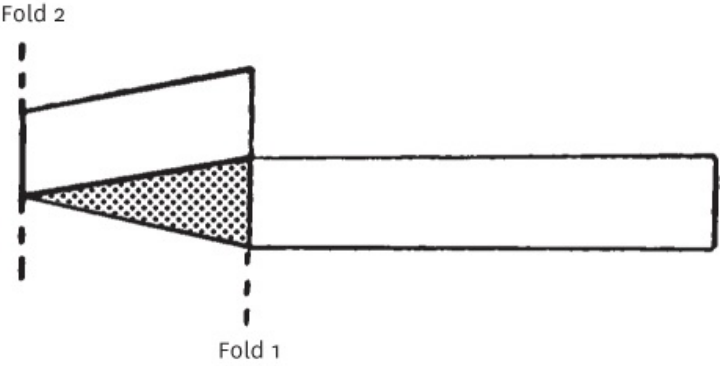
Mountain fold

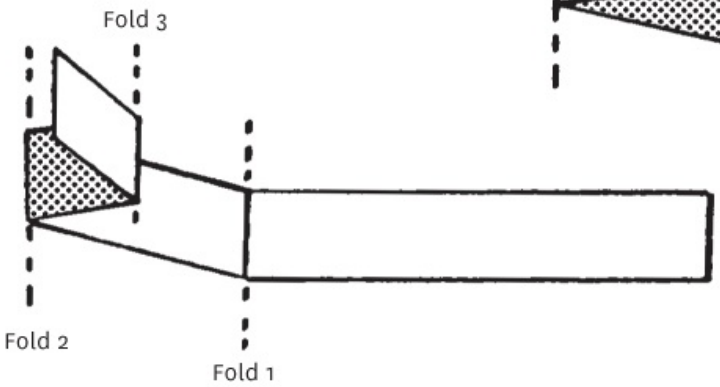
Folding a concertina

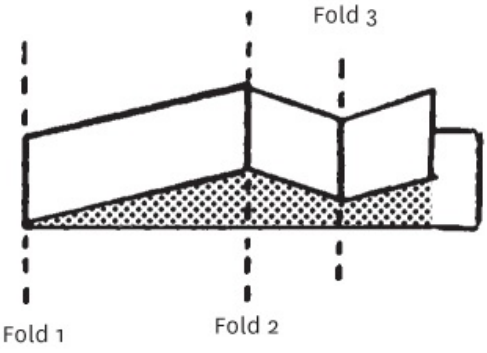

Fold 1

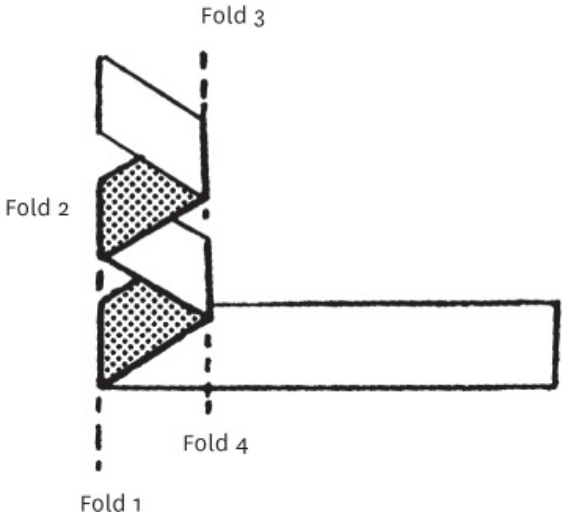

Fold 2
Fold 1


Fold 2
Fold 1


Fold 2
Fold 1


Fold 3
Fold 2
Fold 1


Fold 3
Fold 1
Fold 2


Fold 3
Fold 2
Fold 4
Fold 1

6. Gently rub down through the top layer and again directly on the fold once a light crease has been made.

7. Flip the paper over, keeping Fold 1 on your left. Repeat Steps 2–6 with the other half of the strip.

8. You now have a concertina – place between boards and under weight while you prepare the covers.

The covers

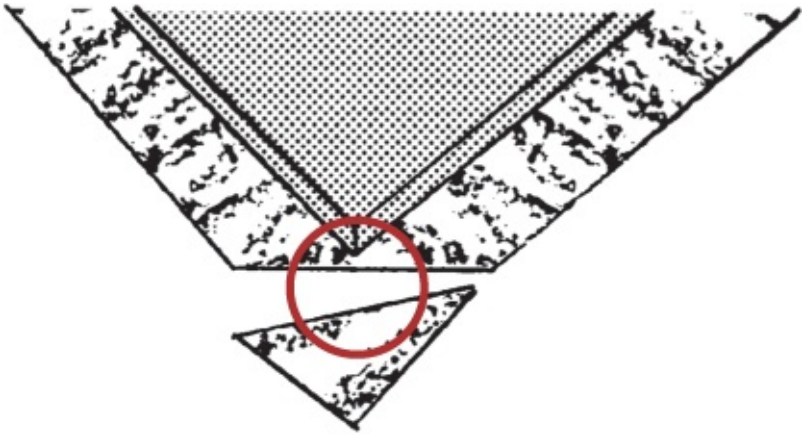
1. Lay one of the sheets of covering paper down onto a large piece of waste paper (if using decorative paper, the printed side should be facing down). Take one of the greyboard pieces, and place it, centred, on top of the covering paper. Lightly outline the greyboard onto the covering paper with a pencil and set aside. Repeat with the second piece of greyboard and covering paper.

2. With a glue or paste brush, stipple PVA onto the covering paper, staying roughly within the outline of the greyboard.

3. Quickly lay the greyboard back on top of the covering paper. Firmly rub the board down with your bone folder, keeping the paper face down.

4. Place the set square or metal triangle against the edge of the greyboard, as shown. Draw a pencil line along the triangle, creating a 45-degree angle and a gap of roughly 3mm (⅛in) between the pencil line and the corner of the greyboard (see diagram, below). Do the same for every corner on both cover pieces.

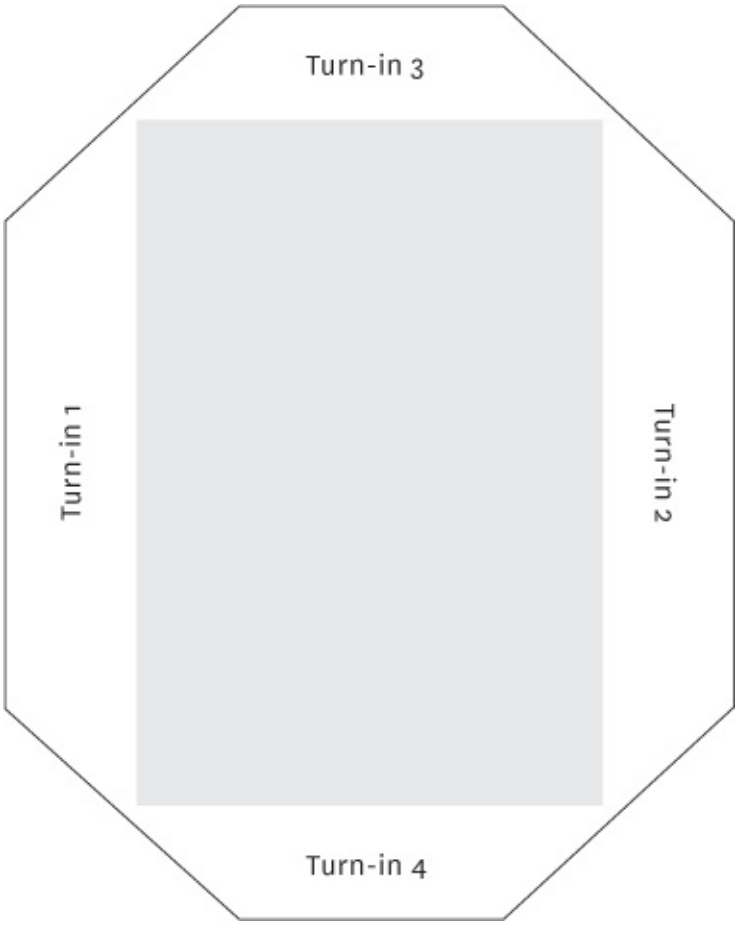
5. Using scissors or a scalpel, trim the corners along the pencil mark.



Leave a gap of roughly 3mm between the greyboard and the pencil line/cutting line.

The measurement of the gap should be approximately the same as the thickness of 1½ boards.

6. Place a clean piece of waste paper onto the work surface. With a brush, apply PVA to turn-in 1.

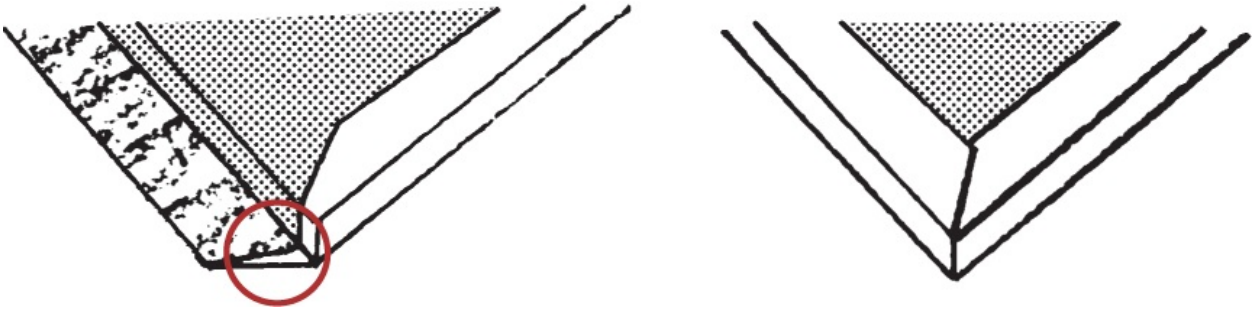


7. Lay the cover at the edge of the table and use the bone

folder to wrap turn-in 1 around the greyboard. Rub down the covering paper under a piece of waste paper to prevent the bone folder from leaving a burnish.

8. Do the same to turn-in 2. Make sure to use a clean piece of waste paper before repeating the steps.

9. Once turn-in 1 and turn-in 2 have been pasted to the greyboard, use the tip of the bone folder to pinch the overlapping covering papers as pictured.



Pinch the covering paper around the greyboard.

10. Apply PVA to turn-in 3, being careful not to get glue onto turn-in 1 and turn-in 2. Wrap the covering paper onto the greyboard. Do the same to turn-in 4. The covering paper should overlap neatly at the corners, as shown in the diagram on here.

11. Once all turnins have been glued, rub down once more, including the edges, with the bone folder to ensure an even application of PVA.

12. Put the piece between boards under weight for at least 20 minutes.

13. Repeat Steps 5–10 with the second piece of greyboard and covering paper.

Attaching the covers to the book

1. Place the concertina onto a clean piece of waste paper. Mask off everything but the top panel by placing one sheet of waste paper inside the first fold and another piece inside the second fold.

2. With a brush, apply PVA to the exposed top panel.

3. Place one of the cover boards face down on the surface, quickly remove the waste paper and carefully lay the glued panel down onto the cover board, making sure the concertina is centred. Rub down with a bone folder to ensure an even application of PVA.

4. Repeat Step 1 with the second cover board and the other end of the concertina.

5. Insert a piece of blotting paper slightly bigger than the book in between the front and back covers, and place between boards and under weight to dry (ideally overnight).

There are a number of simple variations of the concertina. Experiment with the size and materials – use bookcloth instead of decorative paper, or even add pages by attaching extra strips – the steps will be always be the same.

Stab binding

Most books that you see in bookshops or libraries are bound in a way that hides all of the intricate sewing work behind an outer shell, or a case. In a stab binding, the sewing work is front and centre and adds a unique decorative element to the finished book.

Commonly referred to as Japanese stab binding, the binding style or variations of it have existed in East Asia for centuries. We will be referencing the techniques and terminology of the Japanese style of stab binding in this book.

Stab bindings are so called as, rather than piercing a hole through the fold at the spine of the book, you use an awl to ‘stab’ the sewing holes through the entire thickness of the book in one go, and the thread wraps around the spine of the book. Stab bindings are a great opportunity to use colourful linen threads, or silk threads, to contrast with the covers.

Four-holes tab binding (Yotsume-toji)

Materials

See here for a note on paper sizes.

Text paper: Twenty sheets of thin paper. No thinner than 60gsm and no thicker than 80gsm, short-grain. 140 x 420mm (5½ x 16½in) – roughly five A2 sheets cut into four pieces each.

Cover: Two sheets of paper for the front and back covers, the same size as your text papers. 140 x 420mm (5½ x 16½in) – roughly one A3 sheet cut in half lengthwise. Choose colourful or decorative papers no thinner than 80gsm and no thicker than 120gsm.

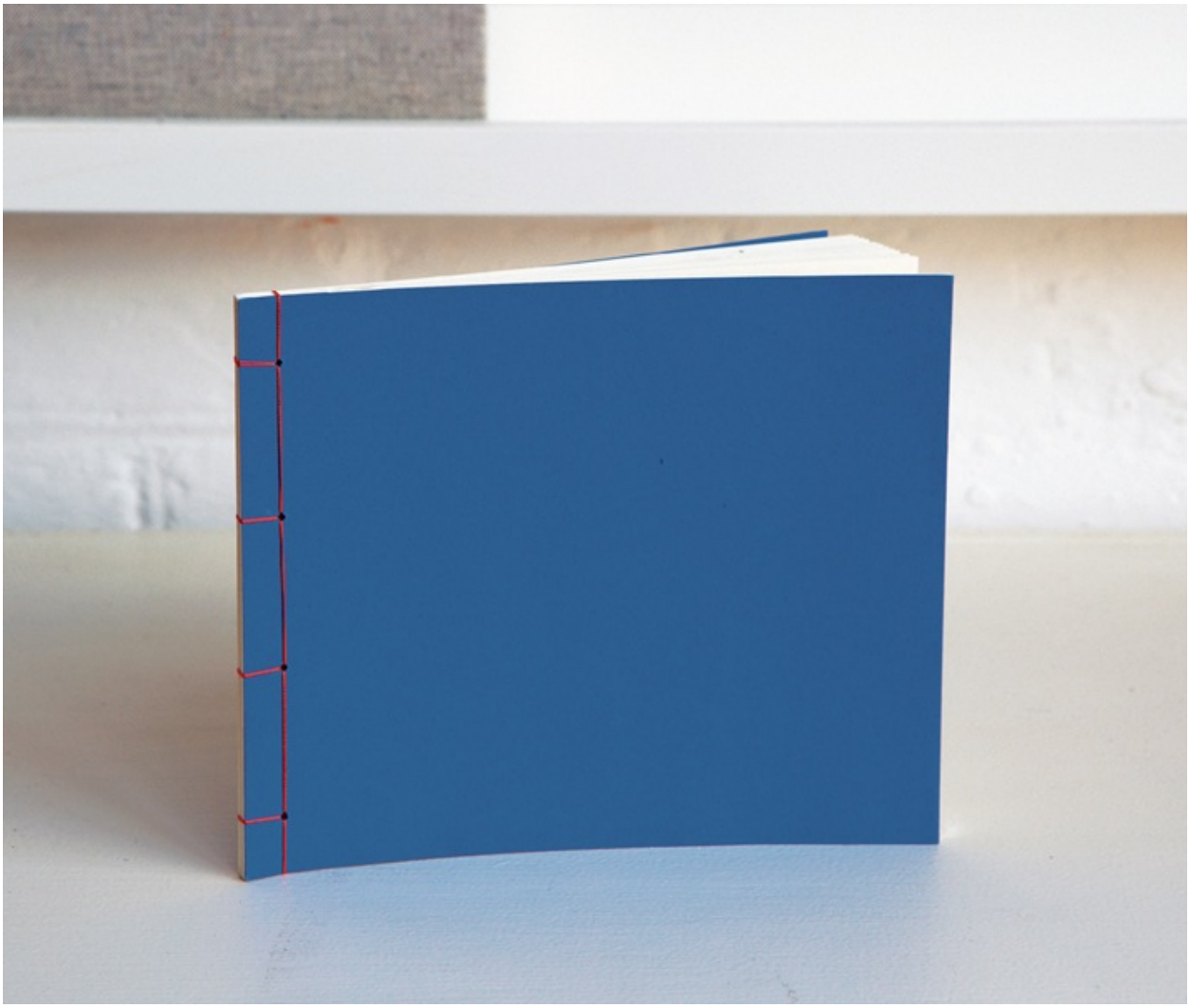
Waste paper.

Linen thread (25/3 thickness), or strong silk thread. Approximately 70cm (27½in).

Tools

Shoe knife
Cutting mat
Scalpel
Bone folder
Boards/weight

Two bulldog or foldback clips
Mechanical pencil
Metal ruler
Spring divider
Awl
Wooden or rubber mallet (optional)
Bookbinding needle
Scissors or shears



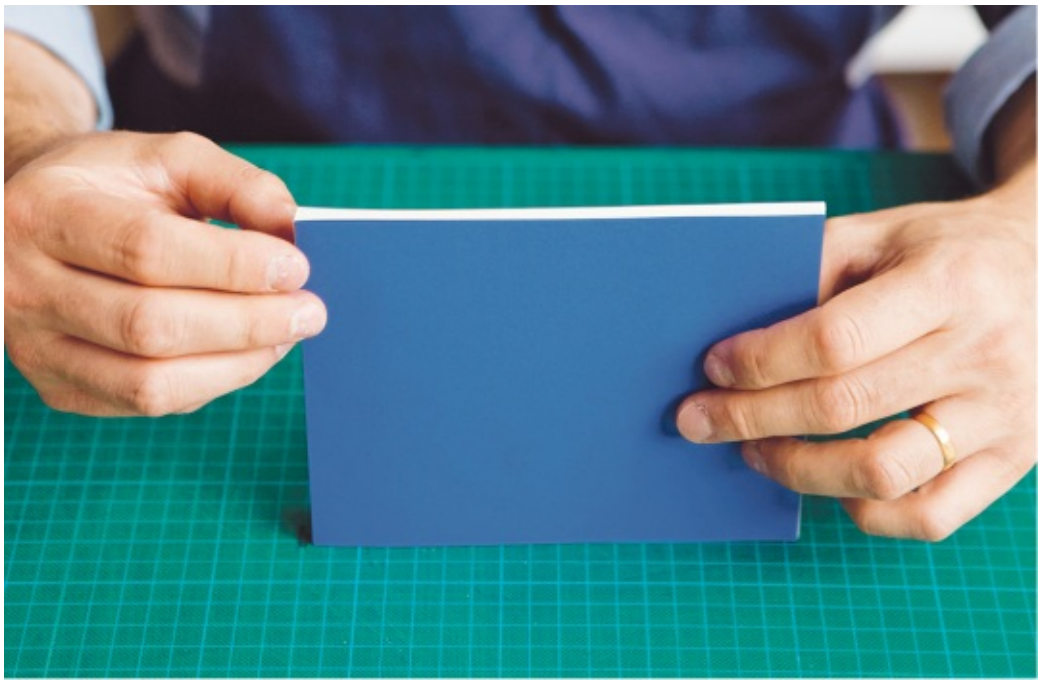
How to make the book

1. Prepare twenty sheets of paper for the text papers, short-grain, 140 x 420mm (5½ x 16½in) – roughly five A2 sheets cut into four strips each. Fold the sheets in half, lengthwise.

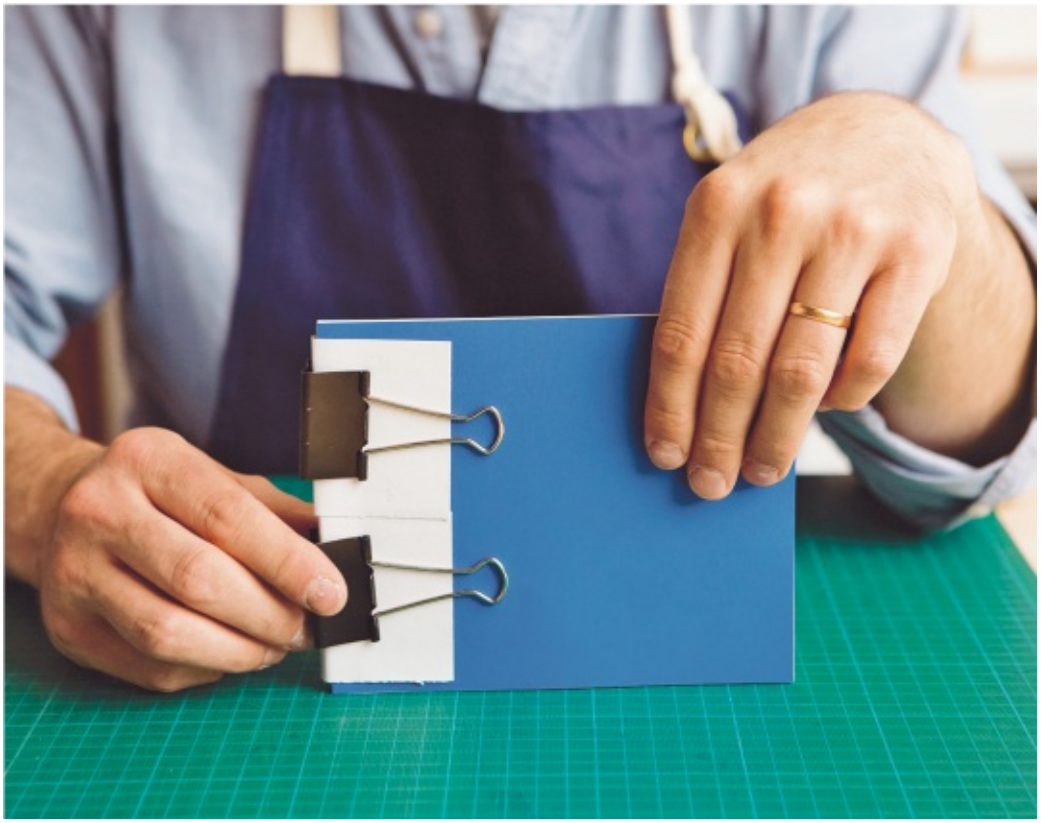
2. Stack the sheets on top of each other with the folds aligned. Go over the folds once more with a bone folder, and if desired, place the stack between boards and under weight for a few minutes while you prepare the covers.

3. Prepare the paper for the front and back covers. These

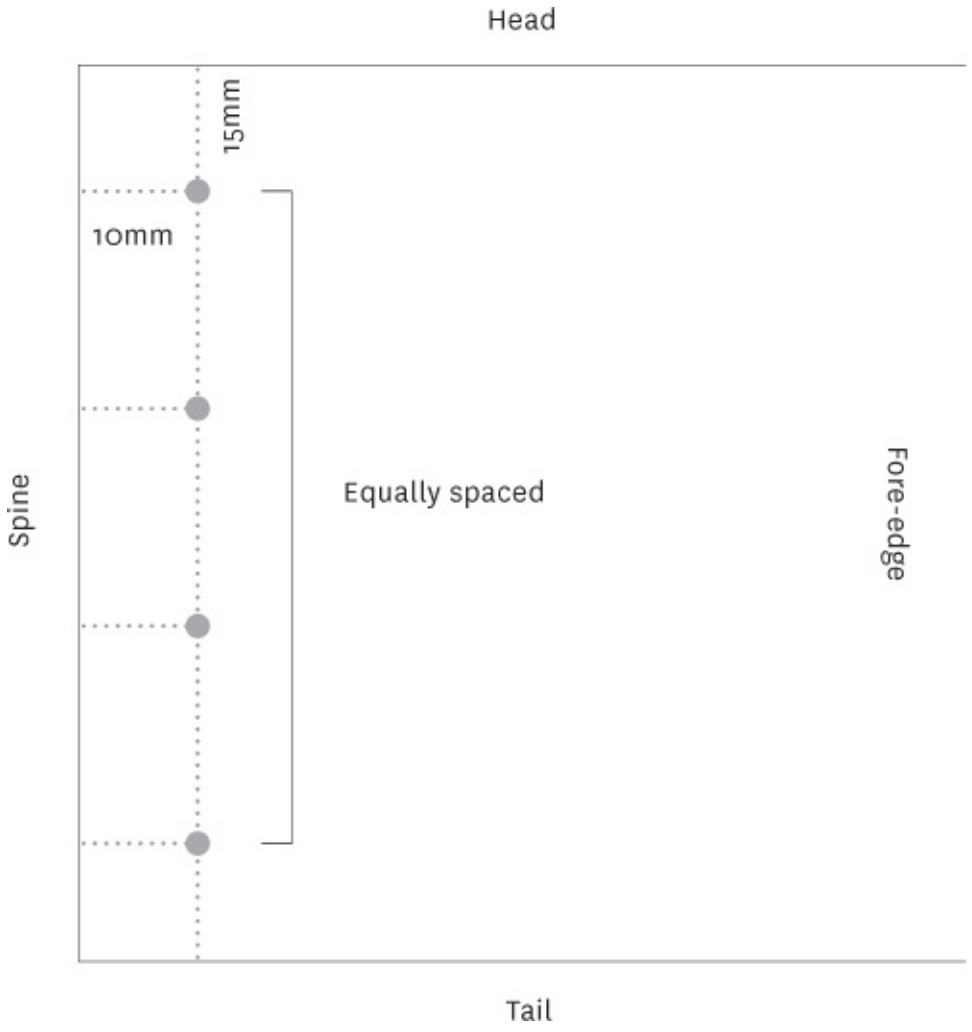
should be short-grain, and the same size as the text papers, 140 x 420mm (5½ x 16½in). Fold the two sheets in half, lengthwise.



4. Assemble the book, text papers between the two covers, with all of the folds neatly aligned. For this binding, the folded edge is the fore-edge.



5. On a flat surface, gently tap the fore-edge and the tail of the book block to make sure that they are perfectly square. Without letting go, carefully fasten two bulldog or foldback clips on to the fore-edge, over a piece of waste paper, to secure the book block (the waste paper prevents the clips from leaving a mark on the paper).

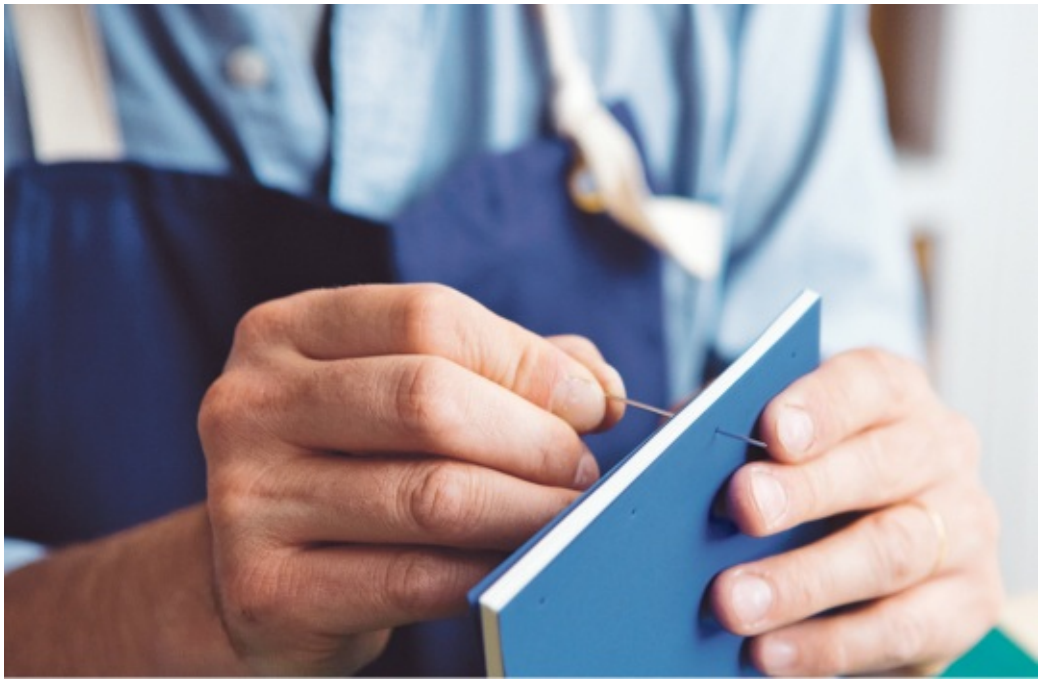


6. Make a sewing station template. Prepare a piece of waste paper that is exactly the same height as the book block, and make sure that the edges are square. Mark the sewing stations, as illustrated, using your pencil, metal ruler, and spring divider.

7. Place the template aligned to the spine edge, as pictured. Lightly mark the sewing stations through the template with an awl. Remove the template.

8. Hold the book block in place on top of a cutting mat with one hand, take your awl, and pierce through the first marked

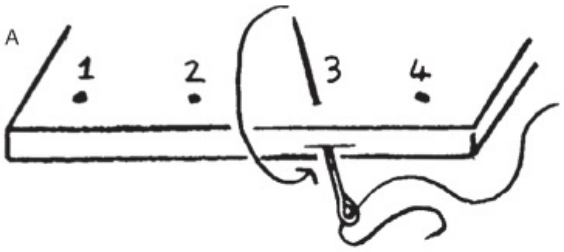
sewing station and through the entire thickness of the book block. This will require a bit of force and care. It is best done standing up. If you are having difficulty, you may want to use a hammer – ideally a wooden or rubber mallet – to lightly tap the awl through the book block.

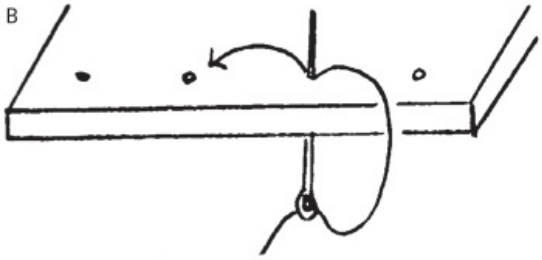


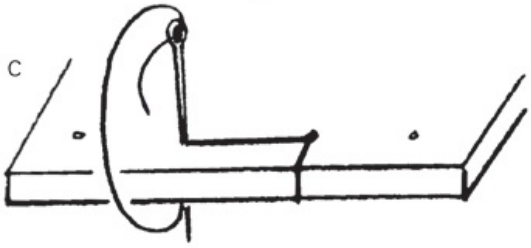
9. Check that you have gone through the book block and that the needle will comfortably go through the sewing station. Take care that the book block and the pages do not shift, in case the sewing stations fall out of alignment. Repeat Step 8 and make all four sewing stations.

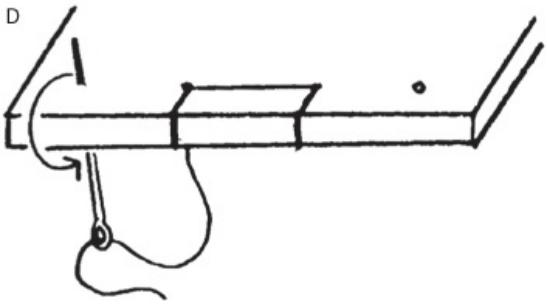
10. Thread a bookbinding needle with either linen or silk thread. The thread should be four and a half times the height of the book (approximately 70cm/27½in). Tie a knot at one end of the thread: the tail-end should be about 5mm (¼in).

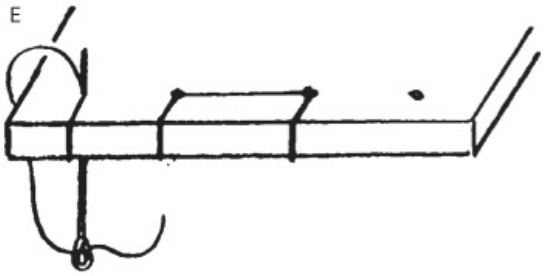
11. Place the book block onto the worksurface with the spine overhanging the edge (without removing the clips from the fore-edge).







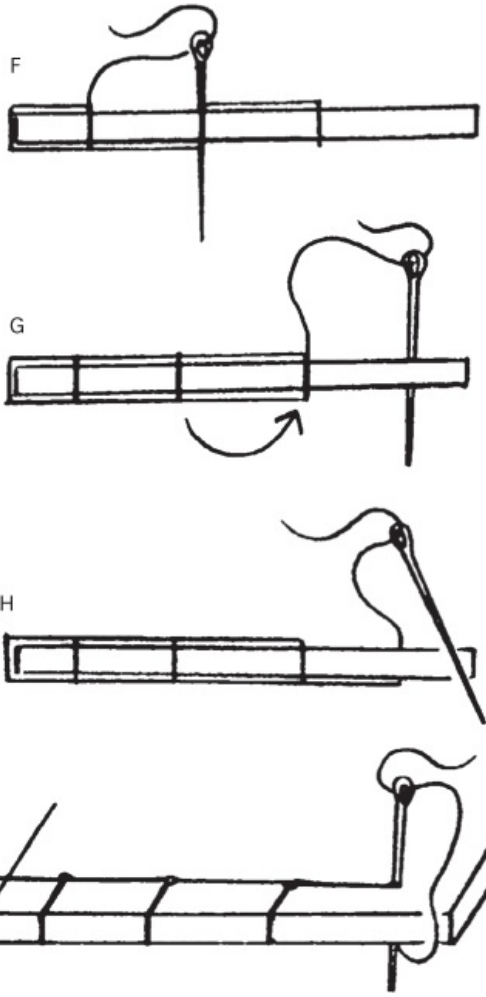


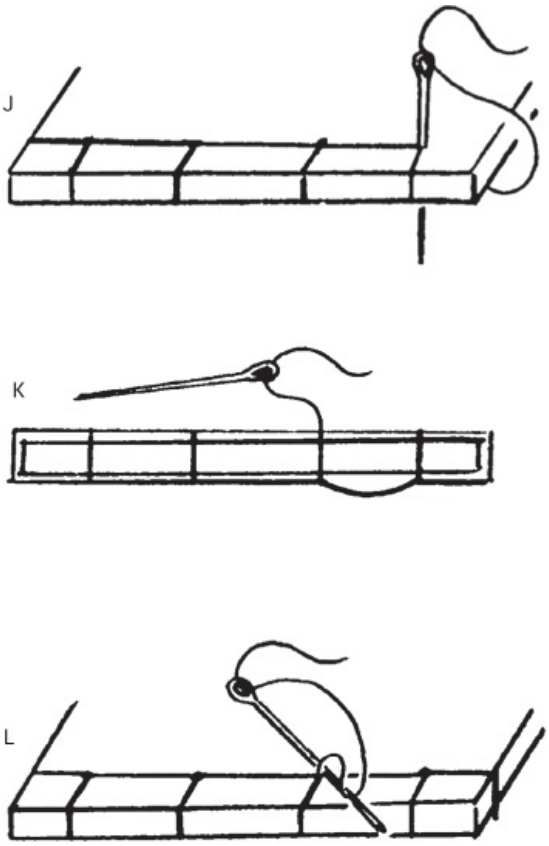


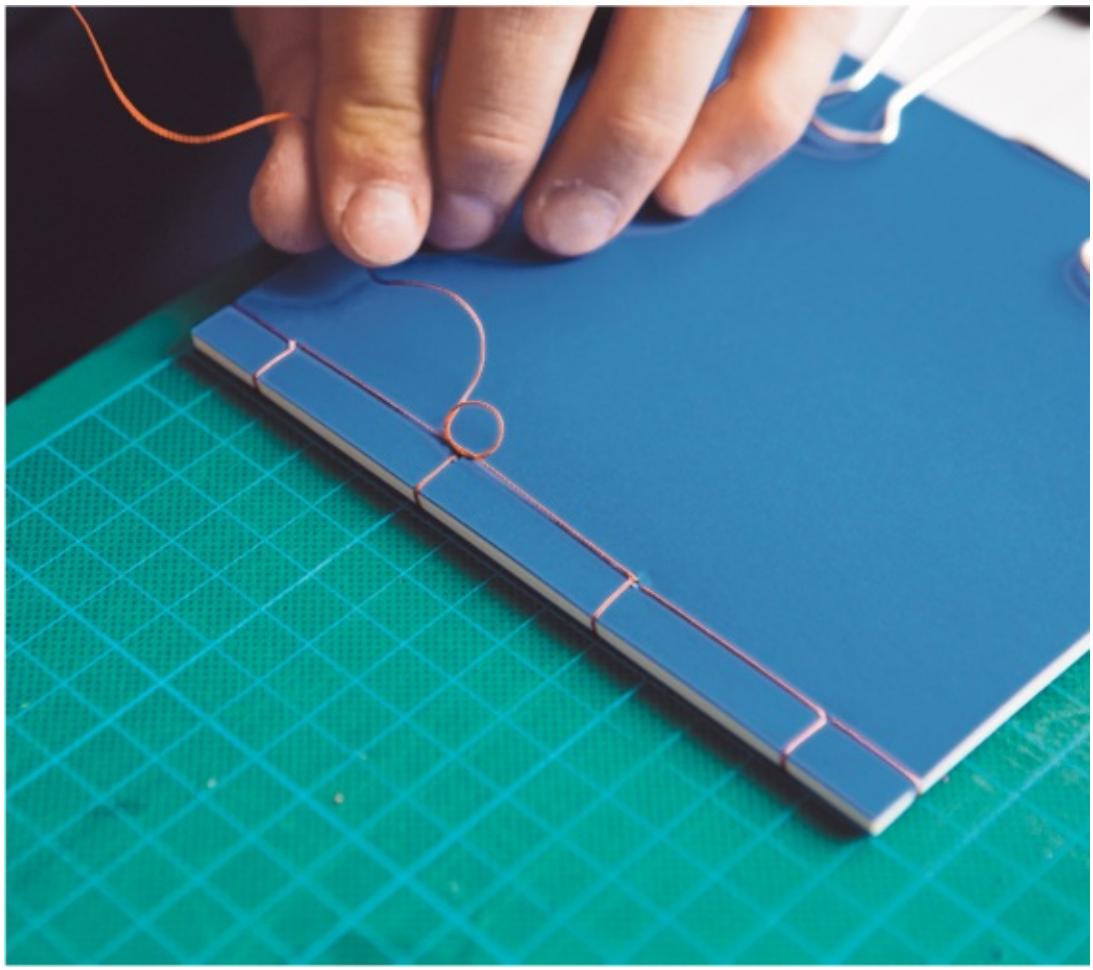
12. Begin sewing through the middle of the spine, between the pages at station 3 (A), and pull the thread until the knot is firmly in place. Wrap around the spine and insert the needle back into station 3 and pull the thread tight (B).

13. Go through station 2 and so forth until you reach station 1 (C and D). Make sure to pull the thread tight and square after each stitch.

14. Once you have wrapped around the spine at station 1, go back into station 1 by wrapping around the head/tail of the spine as illustrated (E).


F
G
H
I


J
K
L



15. Continue sewing across the length of the spine as illustrated (F–I) until you reach station 4.

16. At station 4, wrap around the spine and then head/tail (I and J) and go back through, and out of station 3 – the station that you started from (K).

17. Tie a knot against the stitch at station 3 and insert the needle back into station 3 and out from the spine between the pages. Trim the thread and tuck into the spine (L).

Four-holes tab binding with a hard cover

Materials

See here for a note on paper sizes.

Text paper: Twenty sheets of thin paper, no thinner than 60gsm, no thicker than 80gsm, short-grain, 140 x 420mm (5½ x 16½in) – roughly five A2 sheets cut into four pieces each.

Two sheets of lining paper for inside the front and back covers. 140 x 210mm (5½ x 8¼in) – roughly one A3 sheet cut in half lengthwise. Choose colourful or decorative papers no thinner than 80gsm and no thicker than 120gsm.

Two pieces of 2mm greyboard, 150 x 250mm (6 x 10in) each, short-grain.

Two pieces of bookcloth, approximately 250 x 400mm (10 x 15¾in), short-grain.

Linen thread (25/3 thickness), or strong silk thread. Approximately 70cm (27½in).

Waste paper.

Tools

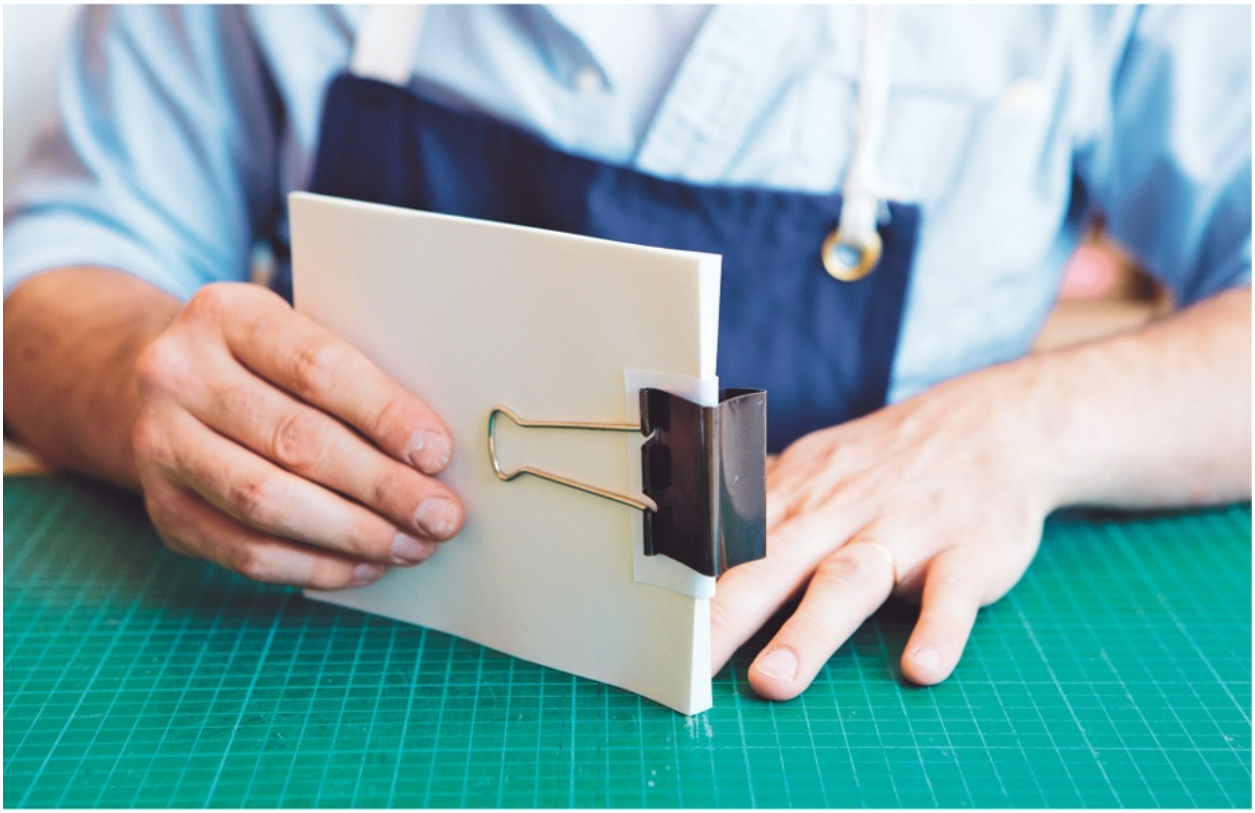
Shoe knife
Bone folder
Scalpel
Cutting mat
Bulldog or foldback clip
Mechanical pencil
Metal ruler
Spring divider
Awl
Wooden or rubber mallet (optional)
Scissors or shears
Metal triangle or set square
Carpenter’s or engineer’s square
Paste or glue brush
Bookbinding needle
Backing hammer

How to make the book

Making the book block

1. Prepare the text papers following Steps 1 and 2 from **Four-hole stab binding** (here).

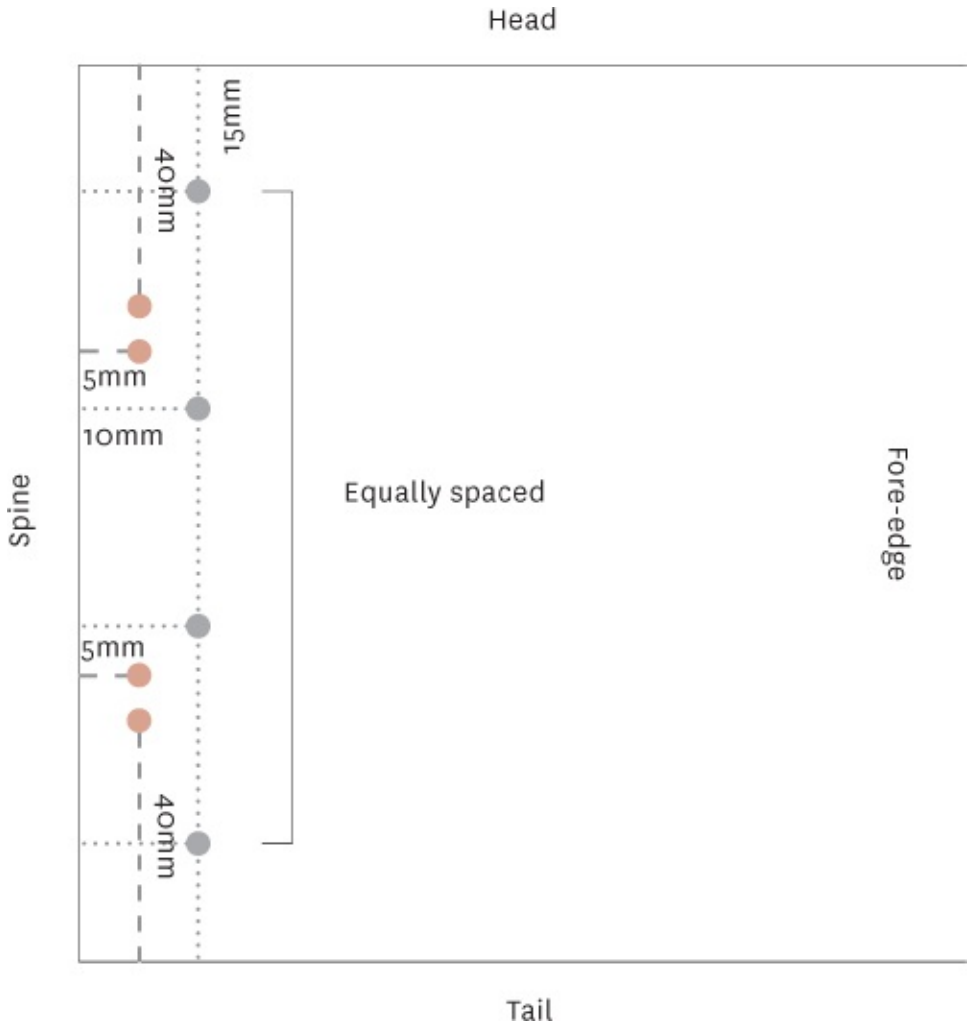
2. Assemble the pages with all of the folds neatly aligned. As with the **Four-hole stab binding**, the folded edge is the fore-edge.



3. On a flat surface, gently tap the fore-edge and the tail of the

3. On a flat surface, gently tap the fore-edge and the tail of the book block to make sure that they are perfectly square. Without letting go, carefully fasten a bulldog or foldback clip over a piece of waste paper to secure the book block (the waste paper prevents the clip from leaving a mark on the paper).

4. Create a sewing station template following Step 6 of **Four-hole stab binding** (here).



5. Onto the same sewing template, make an additional two pairs of holes 5mm (¼in) apart, around 5mm (¼in) in from the spine edge, and around 40mm (1½in) in from the head and from the tail as per the diagram (see red marks). These pairs of holes will be the 'security stitches' – an additional stitching on the book block before the book is bound with the cover.

6. Place the template aligned to the spine edge, on top of the book block. Lightly mark the position of the security stitches through the template using an awl. Remove the template.

7. Pierce the sewing stations (see Step 8, **Four-hole stab Binding**, here).

8. Take a short length of linen thread (no more than a handspan) and sew through the first pair of security stitch holes, leaving the tail ends of thread at one side of the book block. Tie them together tightly using a double knot. Repeat with the other pair of holes. Cut off the excess thread to leave a 3mm (⅛in) tail. These stitches will hold the book firmly in place.

9. Place the book block onto a solid surface. Using the flat head of your backing hammer, hammer the security stitches flat into the book block. Remove the bulldog clip.

10. Now, using the same sewing template, mark and then pierce through the remaining four sewing stations.

Making the covers

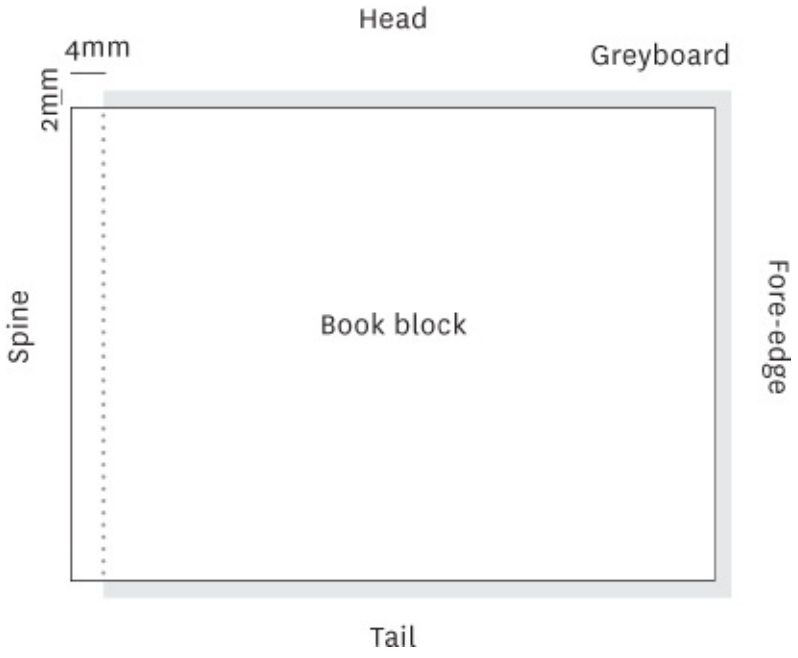
1. Measure the height and width of the book block, it should measure 140 x 210mm (5½ x 8¼in).

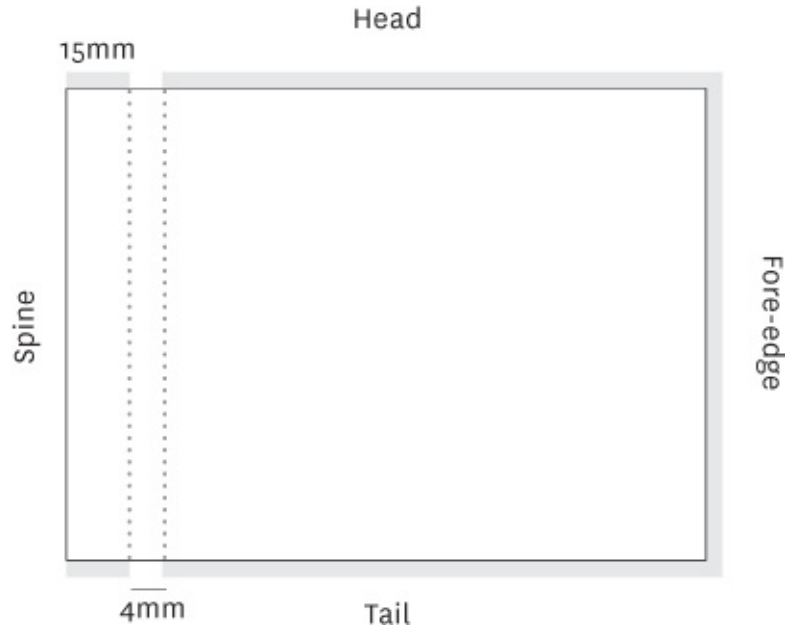
2. Calculate the dimensions of the front and back covers:

> The height of the covers should equal the height of the book block + 2mm (square at the head) + 2mm (square at the tail). The square is the border, or the amount by which the cover will overhang the book block.
>
> The width of the covers should equal the width of the book

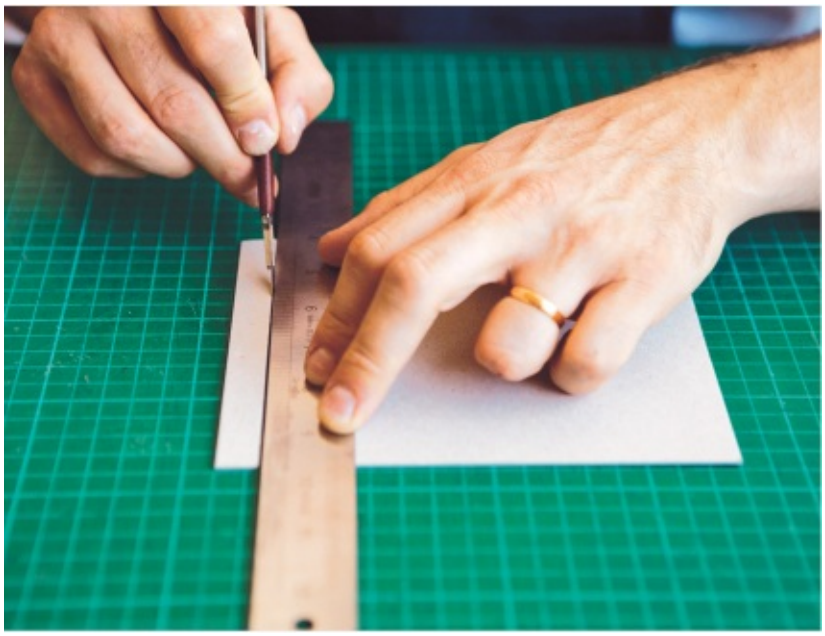
The width of the covers should equal the width of the book block – 4mm (this will compensate for the joint at the spine).

3. Using a scalpel and metal ruler, cut two pieces of greyboard to the size calculated above. Ensure that the grain direction runs parallel to the spine, and check that the boards are square using a carpenter's/engineer's square.





4. Measure and cut the spine piece: Measure, mark, and cut a 15mm (⅔in) strip along the short edge from each of the cover boards. These strips, the spine pieces, will create a hinge on the covers that will allow the book to open. At this point, you should have two cover pieces and two spine pieces.



Covering the greyboard

1. Place a piece of bookcloth, fabric-side down, onto the work surface. With a pencil and metal ruler, draw a line across the long edge, roughly 30mm (1¼in) in from the bottom. Using a set square or triangle, or by using the grid on a cutting mat as a guide, draw another line along the short edge, roughly 30mm (1¼in) in from the left. The two lines should create a 90-degree angle.

2. Lay one of cover pieces on top of the bookcloth, with the fore-edge and head aligned to the lines from step 1. With a pencil, lightly outline, and then remove the cover piece.

3. With a glue brush, apply PVA to the area outlined and lay the cover piece carefully back onto the cloth. Rub down with a bone folder.

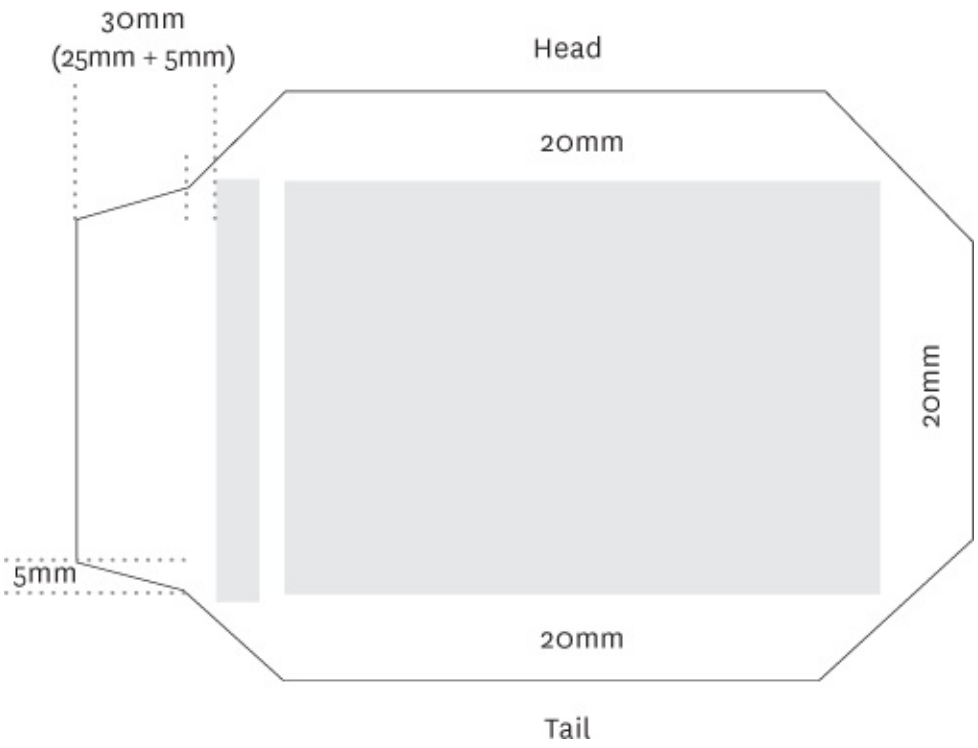
4. Measure and mark the joint gap by placing two pieces of 2mm grey board against the right edge of the cover piece from step 3.

5. Place one of the spine pieces aligned to the joint gap, and in line with the cover piece. With a pencil, lightly outline, and then remove the spine piece.

6. With a glue brush, apply PVA to the area outlined and lay the spine piece carefully back onto the cloth – set a metal ruler along the bottom of the cover piece to make sure that the two pieces are aligned. Rub down with a bone folder.

7. Trim the bookcloth so that you are left with approx 20mm (¾in) on the head, tail and fore-edge, and approx 30mm (1¼in) at the spine. Cut the corners at the fore-edge at a 45-degree angle (see here) and the corners at the spine as per the diagram above.

8. Glue the turnins following the steps described for **Concertina with decorative paper covers** (here), starting with the head, tail, fore-edge, and finally the spine.



9. Once all of the turnins have been glued, place the cover, face-up, onto the work surface and place a piece of clean waste paper on top. Go over the joint gap with the tip of a bone folder to create a crease in the bookcloth. Do the same on the reverse.

Lining the cover

1. Calculate and cut two pieces of lining paper. The height and width of the lining paper should be 4mm less than the height and width of the cover piece (to allow for a border).

2. Apply PVA to the lining paper and carefully glue onto the

2. Apply PVA to the lining paper and carefully glue onto the cover board, leaving an even border (of 2mm) at the head, tail, and fore-edge. Rub down with a bone folder and place between boards and under weight to dry. Do the same for the other cover board.

Mark the sewing stations

1. Once the covers are dry, mark and pierce the sewing stations. Place what will be the front cover board onto a cutting mat, face-up. Align and centre (from head to tail) the sewing template from here against the spine edge. Using an awl, mark the sewing stations onto the cover board.

2. Place what will be the back cover board onto the cutting mat, face-down, and repeat Step 1.

3. Place the front cover board back onto a cutting mat, face-up, with a piece of scrap greyboard underneath the spine piece. With an awl and a hammer, pierce the sewing stations.

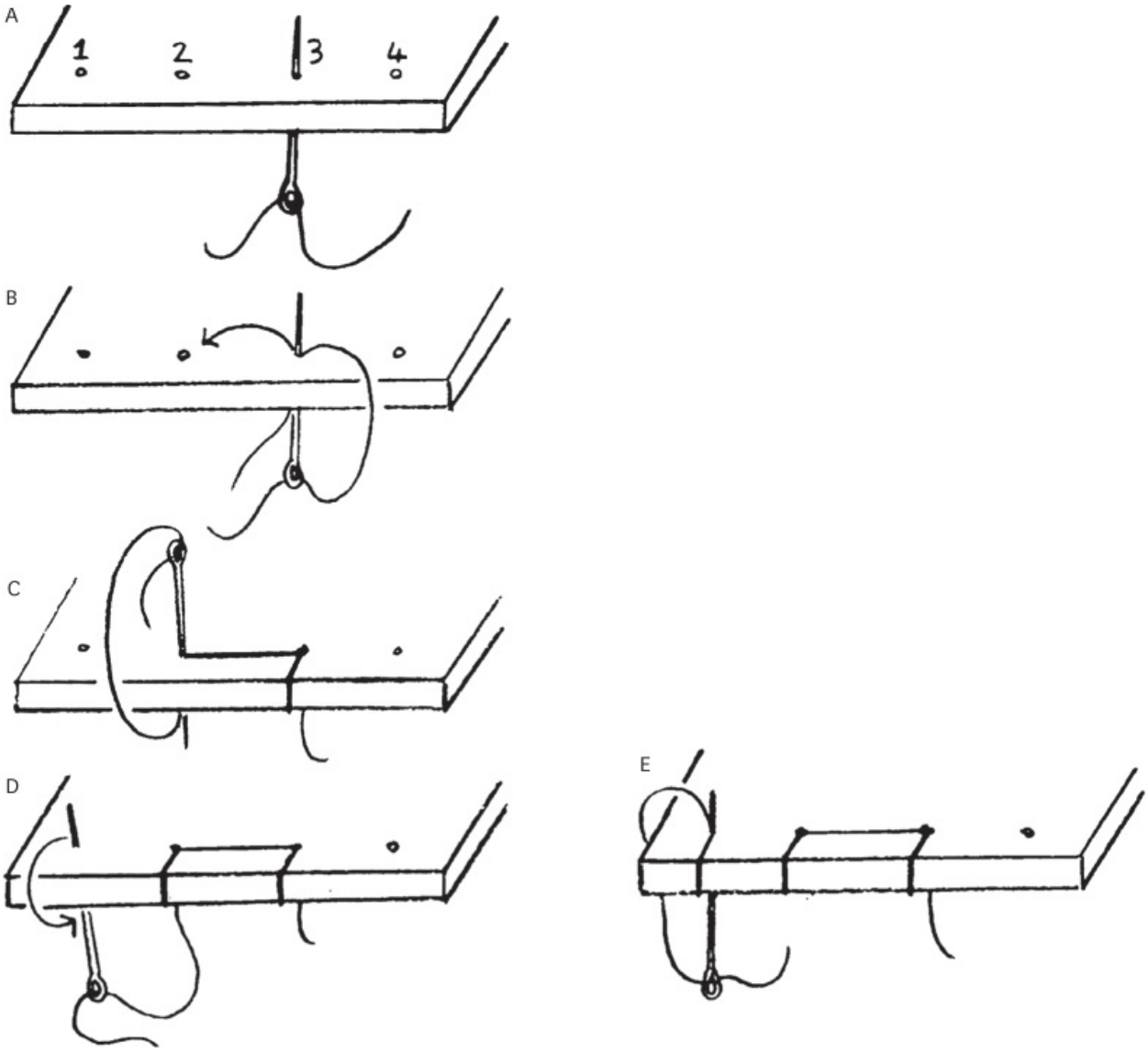
4. Place the back cover board back onto a cutting mat, face-down, and repeat Step 3.

Sewing

1. Gather together the front and back covers and book block in the correct order and orientation. Tap the spine against the work surface to make sure it is perfectly aligned, and before sewing ensure that the needle fits through each sewing station.

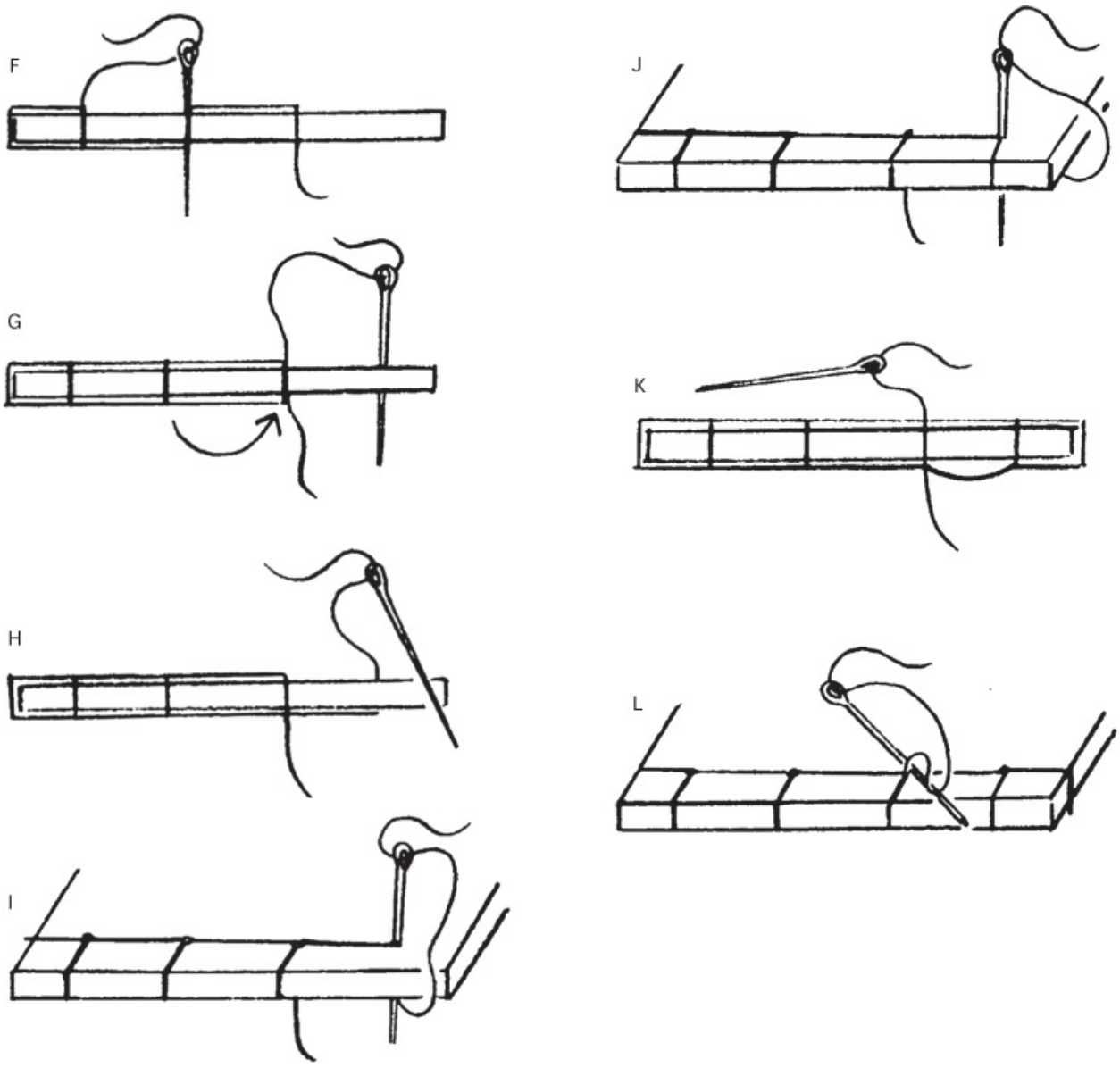
2. Place the book block onto the worksurface with the spine overhanging the edge and place a weight on top as pictured

3. Thread a bookbinding needle with either linen or silk thread. The thread should be four and a half times the height of the book (approximately 70cm/27½in). Tie a knot at one end of the thread, the tail-end should be about 5mm (¼in).



4. Begin sewing from the bottom of station 3, and pull the thread until the knot is firmly in place. Wrap around the spine and insert the needle back into station 3 (A and B) and pull the thread tight. Go through station 2 and so forth until you reach station 1 (C and D). Make sure to pull the thread tight and square after each stitch.

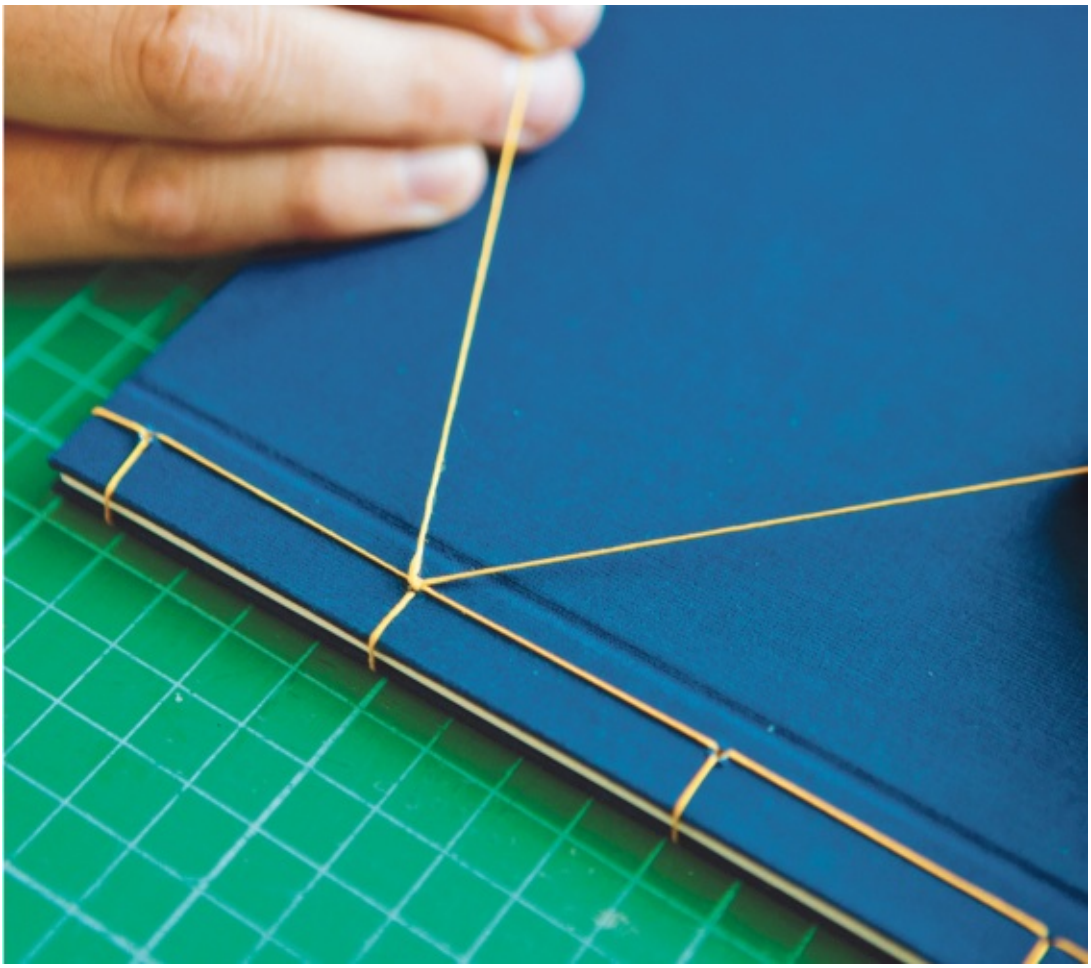
5. Once you have wrapped around the spine at station 1, go back into station 1 by wrapping around the head/tail of the spine as illustrated (E).



6. Continue sewing across the length of the spine as illustrated(F–I) until you reach station 4.

7. At station 4, wrap around the spine and then head/tail (I and J) and go back through, and out of station 3 – the station that you started from (K).

8. Tie a knot against the stitch at station 3 and insert the needle back into station 3 and out to meet the tail-end of the thread. Pull tight and tie a reef knot as pictured (L).



Slim case bindings

A ‘case binding’ is what most people commonly think of as a ‘hardback’ book. A case binding consists of a section or multiple sections (text block) set between a hard front and back cover (made of cloth-or paper-covered boards) and a spine.

In this chapter, we will guide you through the steps of creating a slim case binding. This binding can be made in considerably less time than a multi-section case binding, and is made using the same sewing techniques described in the **Three-hole pamphlet** project (here).

When planning and designing a case binding, think carefully about the combination of the paper or cloth covering material and the endpapers. The combination of the two, the exterior and interior segue into the book, can lead to a surprising visual experience.

Single-section case binding

Materials

See here for a note on paper sizes.

Text paper: Two sheets of A2 paper no thinner than 80gsm or thicker than 130gsm, short-grain.

Waste paper.

Linen thread (18/3), roughly 60cm (24in) long.

Endpapers: Two sheets of A4 decorative or coloured paper for endpapers. No thinner than 100gsm and no thicker than 130gsm, short-grain.

PVA glue.

Mull or fraynot calico, 5 x 18cm (2 x 7in).

Greyboard: Sheet of 2mm greyboard no smaller than 250 x 350mm (10 x 13¾in), short-grain.

Bookcloth: Approximately 350 x 450mm (13¾ x 17¾in), short-grain.

Blotting paper/barrier paper.

Tools

Bone folder

Shoe knife
Metal ruler
Mechanical pencil
Awl
Bookbinding needle
Cutting mat
Paste or glue brush
Scalpel
Scissors or shears
Triangle or set square
Boards/weight

How to make the book

Preparing the section

1. Prepare two sections, 16 pages each, or octavo (see here), and combine the two sections by inserting one inside of the centre fold of the other. This will give you a 32-page section.

2. Make a sewing station template: follow the steps for making a template for a **Three-hole pamphlet** (see here).

3. Sew the section as you would a **Three-hole pamphlet** (here), but begin sewing from the inside of the section, so that you are left with the knot on the inside.

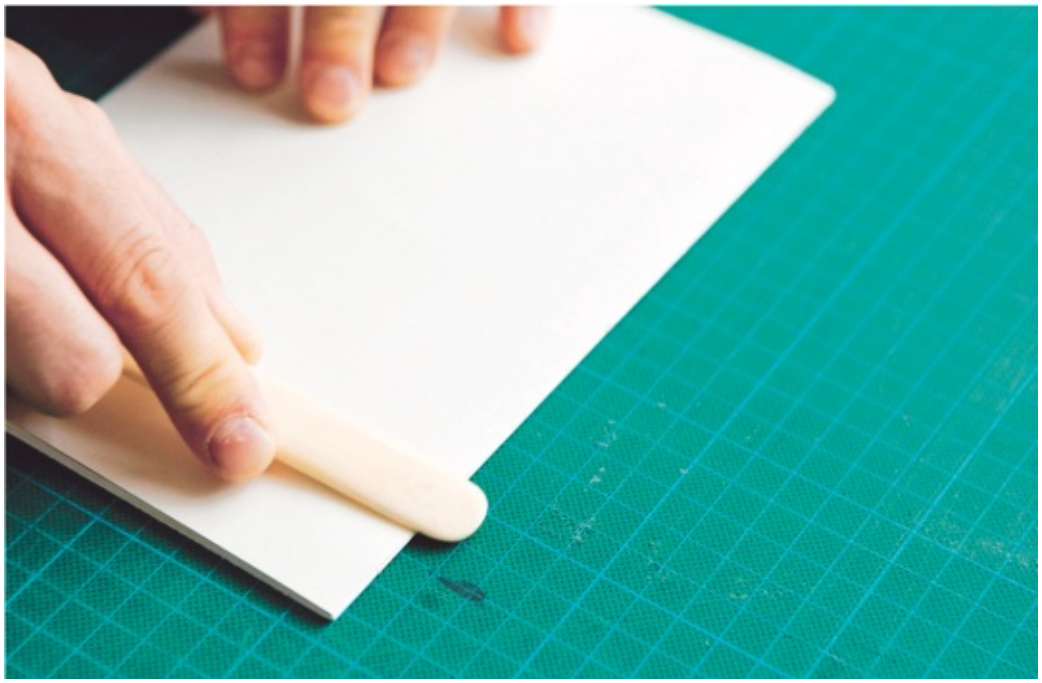
Attaching endpapers

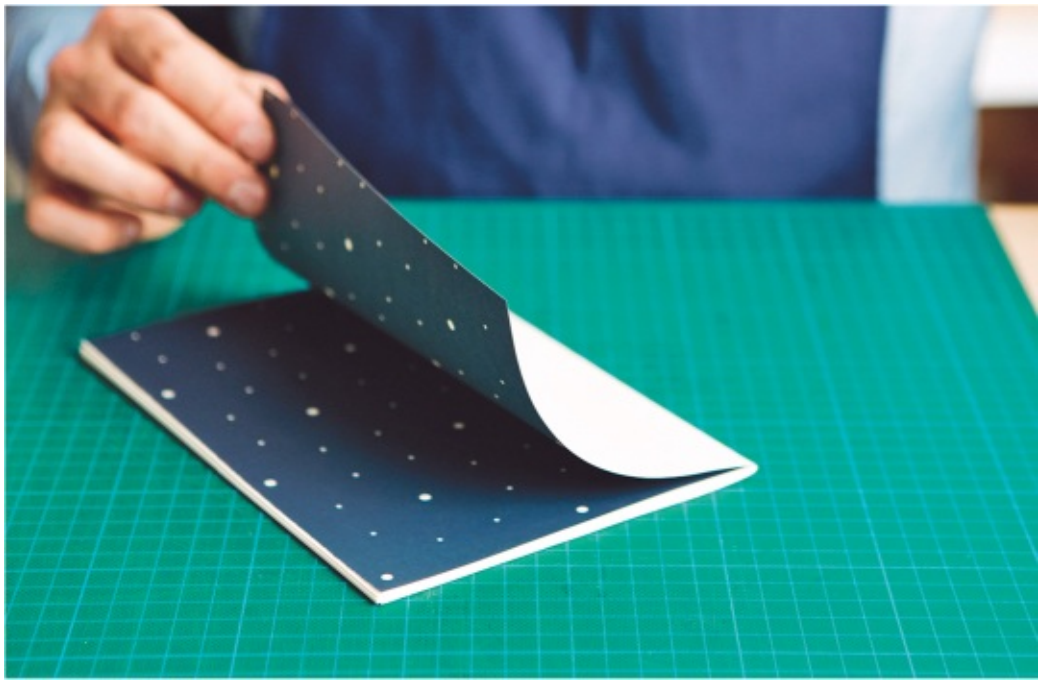
4. Fold the two sheets of endpapers in half, lengthwise. If using decorative paper, the decorative side should be on the inside of the fold.

5. Place a sheet of waste paper down on the work surface. On top of the waste paper, place the two folded endpapers and another sheet of waste paper, masking off everything but a 5mm (¼in) strip of the folded edge of each endpaper, as pictured.

6. Apply the PVA onto the exposed area.

7. Remove the waste paper, and carefully attach the first endpaper flush against the spine of the prepared section. The folds must be perfectly aligned. Rub down thoroughly with a bone folder.





8. Turn the section over, and do the same on the other side with the second endpaper.

9. At this stage, if desired, trim the section (see here).

Lining the spine

1. Fold and crease the strip of fraynot in half, long edge to long edge, as shown.

2. Apply just enough PVA to cover the spine edge of the section, avoiding getting PVA on the sides.

3. Lay the spine edge of the section into the folded fraynot. Rub down well with a bone folder, ensuring good contact between the fraynot and the section.

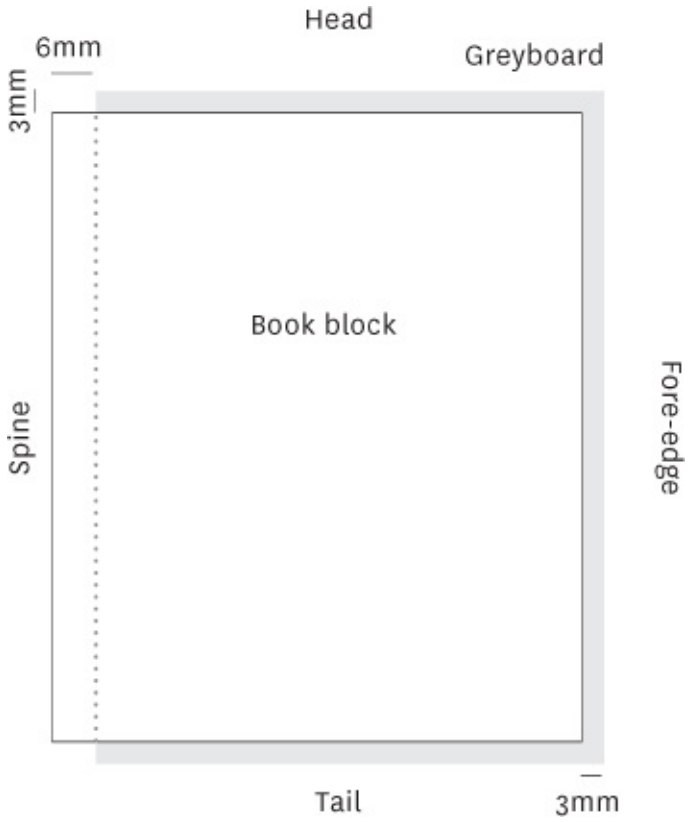
Preparing the greyboard and measuring the spine gap

1. Measure the height and width of the book block, it should measure approx 148 x 210mm.

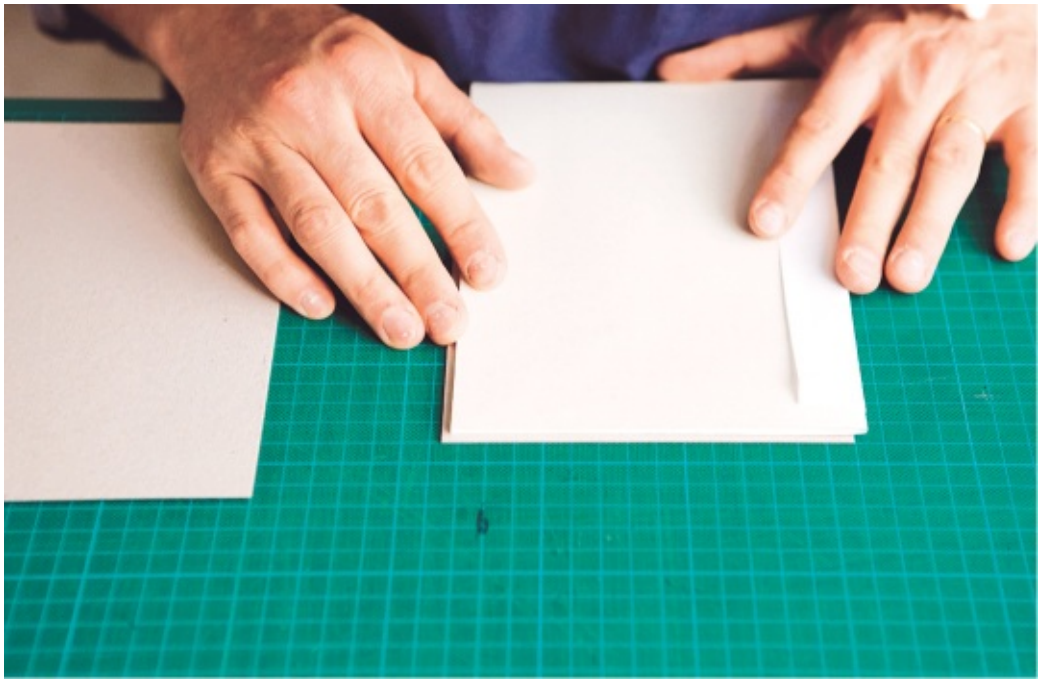
2. Calculate the dimensions of the front and back covers:

> The height of the covers should equal the height of the book block + 3mm (square at the head) + 3mm (square at the tail).
>
> The width of the covers should equal the width of the book block + 3mm (square at the fore-edge) – 6mm (this will

block + 3mm (square at the fore-edge) – 6mm (this will compensate for the joint gap at the spine).



3. Using a scalpel and metal ruler, cut two pieces of greyboard to the size calculated above. Ensure that the grain direction runs parallel to the spine, and check that the boards are square using a carpenter’s/engineer’s square.



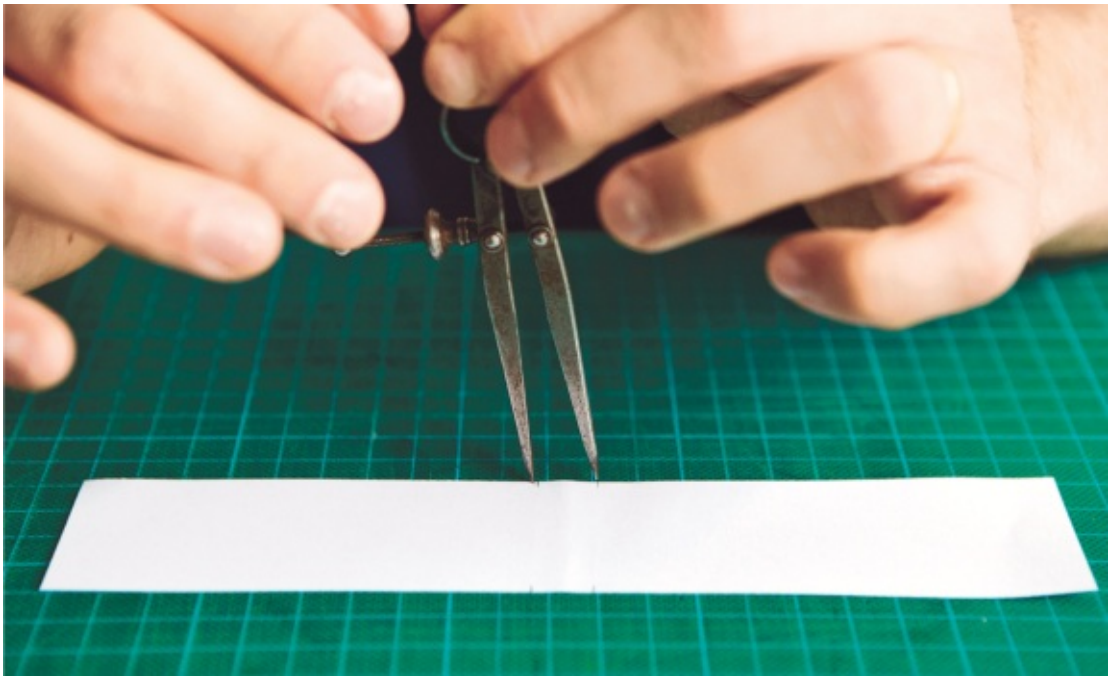
4. Place one of the greyboard pieces down on the work surface. Lay the section on top of the greyboard so that you have an even square at the head and tail (as pictured). It is best to look from directly above the book, standing, to ensure accuracy.

5. Carefully place the second piece of greyboard on top of the section, making sure not to move the section and greyboard below. Ensure that the two pieces of greyboard are perfectly aligned.

6. Carefully lift the assembled boards and section – hold them firmly, as it is very important at this stage that the boards and section do not shift their position. Wrap a strip of waste paper around the spine at approx 25mm (1in) from the head (as pictured).

7. With a pencil, mark the position of the edge of the greyboard, both front and back (as pictured).

8. Without losing grip, repeat Steps 6 and 7 at approximately 25mm (1in) from the tail.



9. Unfold the strip of waste paper, you should have a pair of marks. Compare the distance between the marks, they should be the same but if one is larger, use the large measurement for the next step.

10. With a spring divider, take the measurement between the two marks and add 1mm, this will be the spine gap.

Covering the greyboard

1. Place a piece of bookcloth, fabric-side down, onto the work surface. With a pencil and metal ruler, draw a line across the long-edge, roughly 30mm (1¼in) in from the bottom. Using a set square or triangle, or by using the grid on a cutting mat as a guide, draw another line along the short edge, roughly 30mm

a guide, draw another line along the short-edge, roughly 30mm (1¼in) in from the left. The two lines should create a 90-degree angle.

2. Lay the front cover board onto the bookcloth, with the fore-edge and head aligned to the lines from Step 1. With a pencil, lightly outline, and then remove the cover piece.

3. With a glue brush, apply PVA to the area outlined and lay the cover piece carefully back onto the cloth. Rub down with a bone folder.

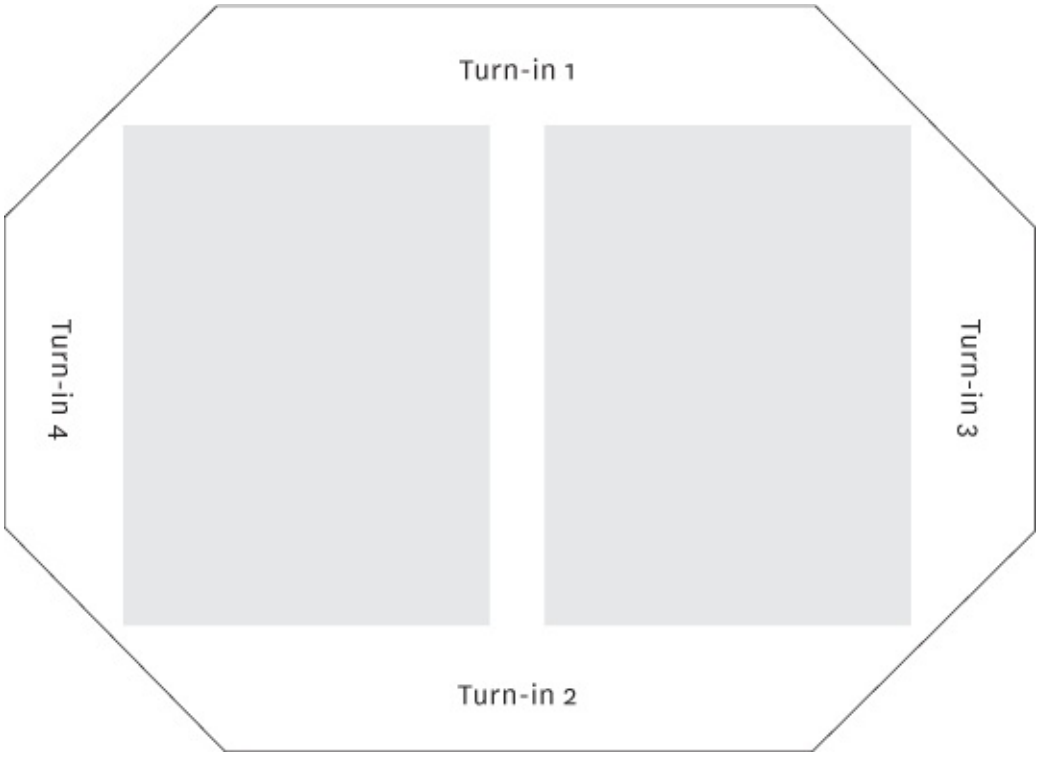
4. Set a metal ruler along the head of the cover board, and draw another line across the bookcloth (as the previous line may have shifted).

5. Mark the spine gap by transferring the measurement from Step 9 (here).

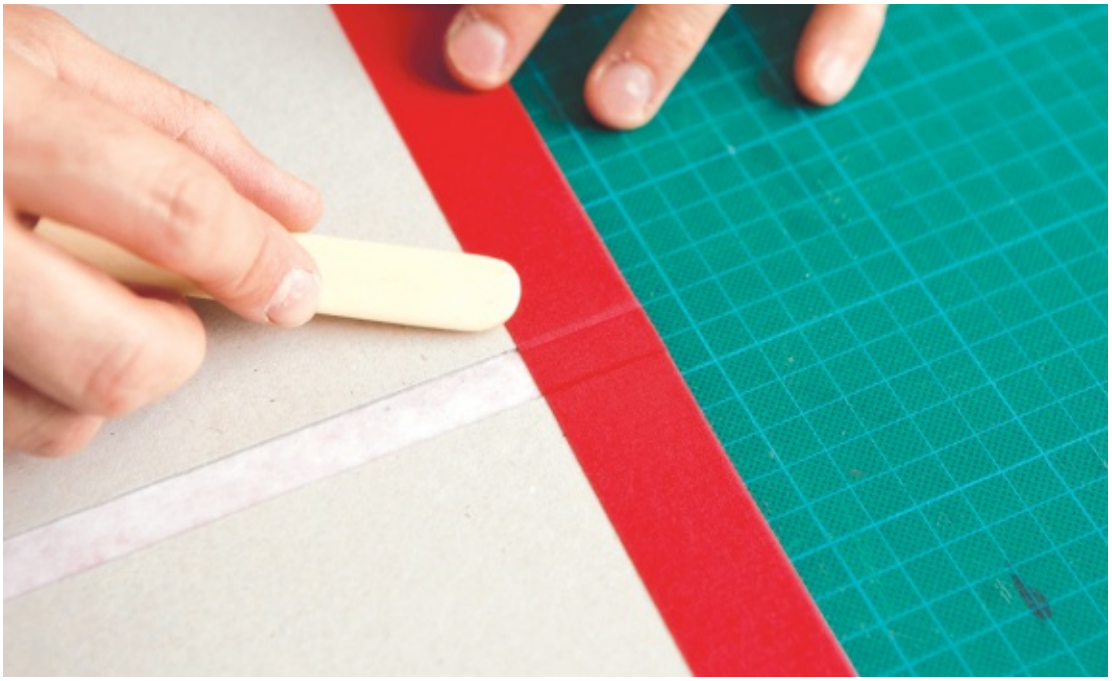
6. Repeat Steps 4 and 5, and mark the spine gap at the tail.

7. Set a metal ruler along the tail of the glued-down front cover board. Using this and the spine gap marks as a guide, lay the back cover board onto the bookcloth. Outline and glue as you did with the front cover board (Steps 2 and 3).

8. Trim the bookcloth so that you are left with approx 20mm (¾in) on all sides. Cut the corners at a 45-degree angle (see here).



9. Glue the turnins following the steps described on here, starting with the head, tail, fore-edge, and finally the spine.

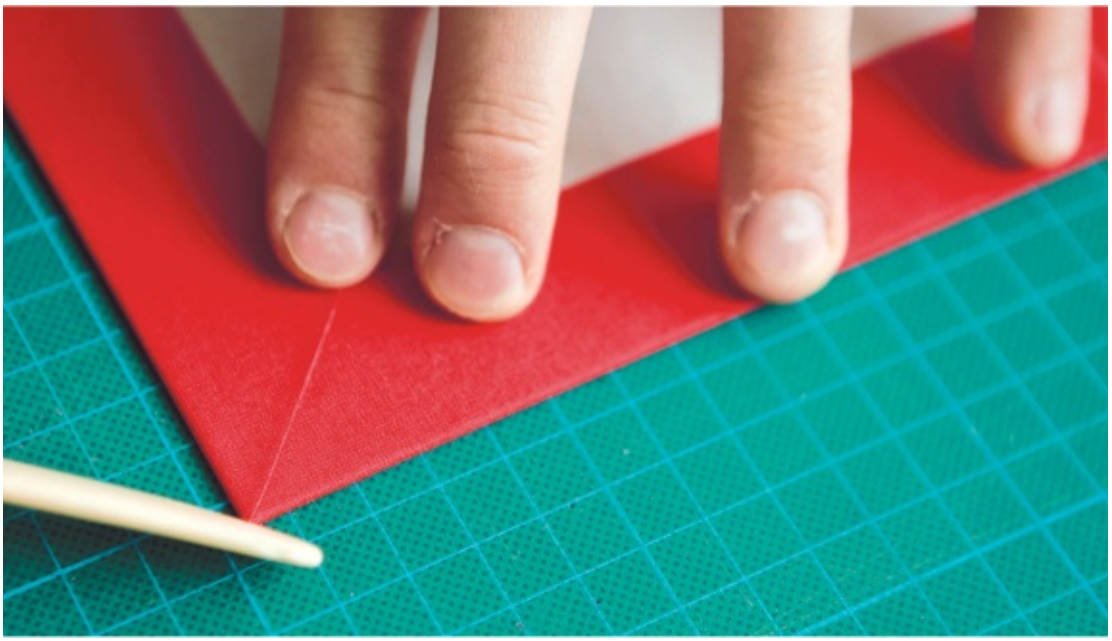


10. Once the turnins on the head and tail have been glued, make sure to go over the spine gap with the tip of a bone folder.

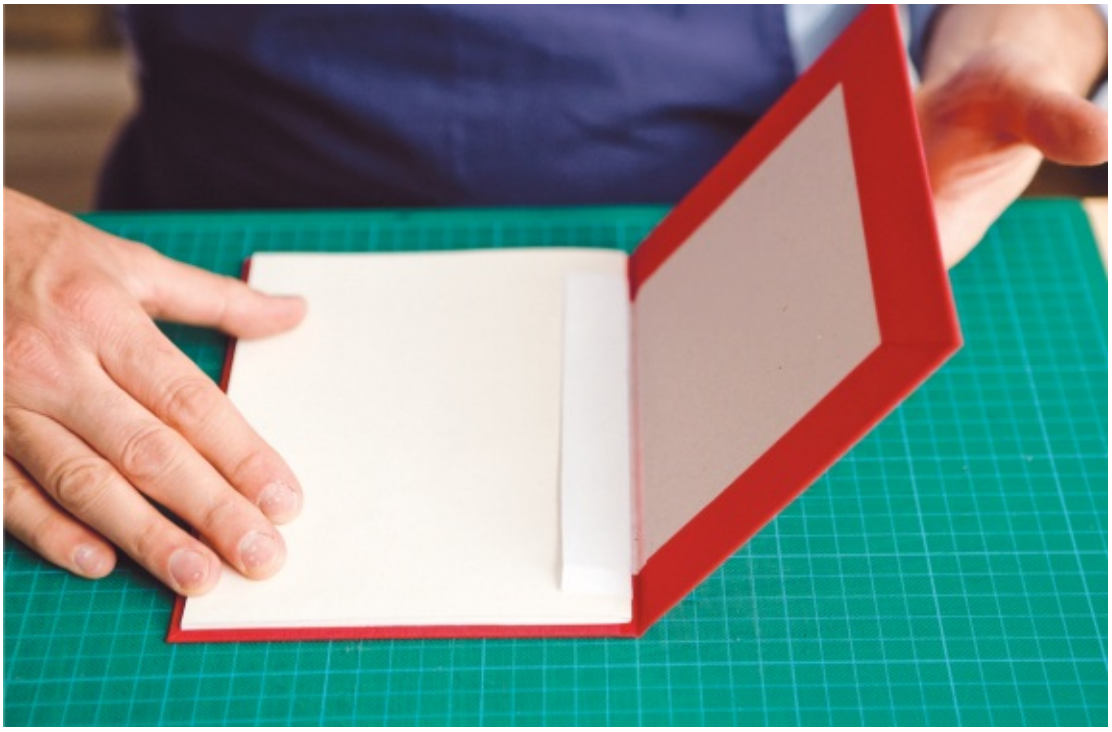
11. Once all of the turnins have been glued, rub down with a bone folder over a piece of waste paper to make sure that there

are no air bubbles or gaps.

12. Lightly round any sharp corners by tapping with a bone folder.



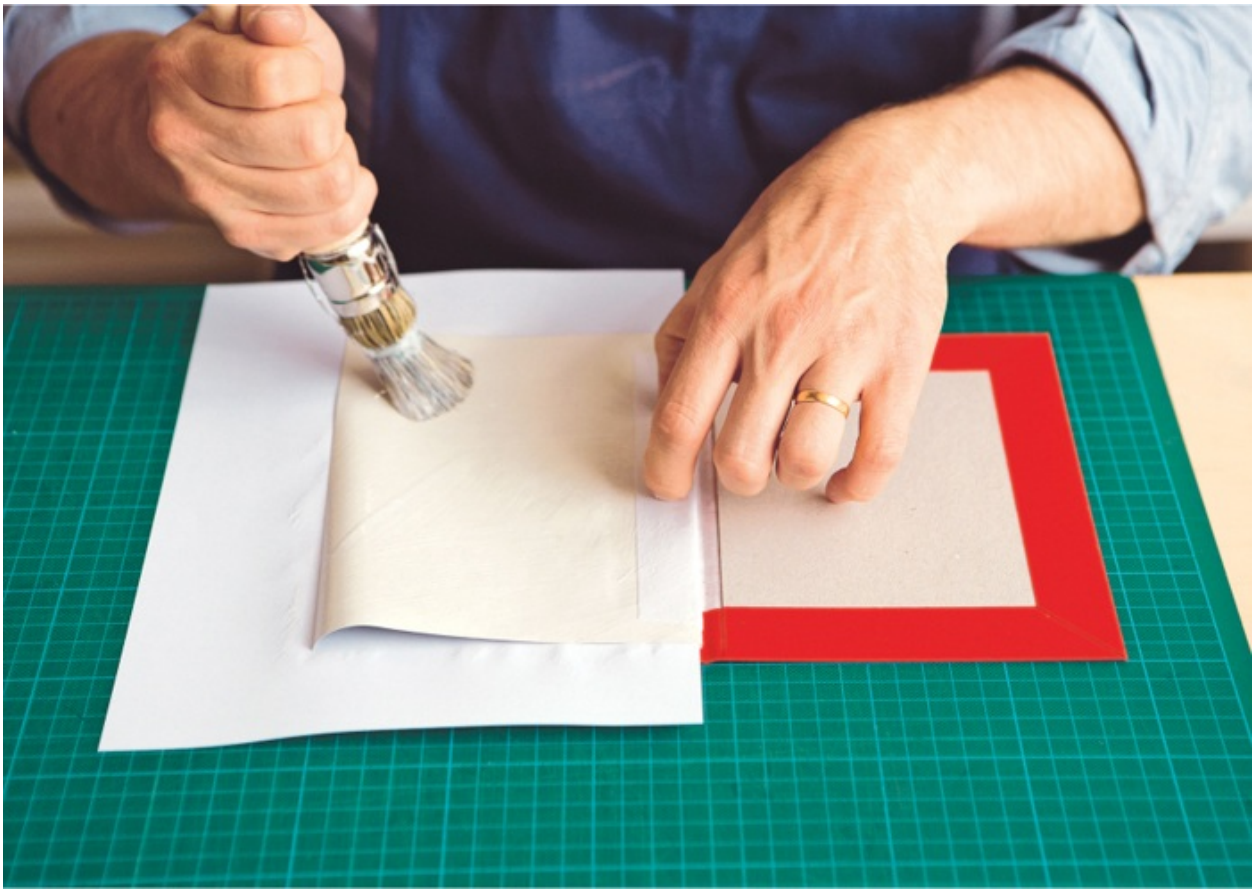
13. Place between two boards and under weight for at least twenty minutes.



Casing in the book

1. Place the book block inside of the case, making sure that the square is even at the head, tail and fore-edge.

2. At this point, if desired, you can trim off about 1mm off of the fore-edge of the front and back outer leaf of the endpapers. This will counter the ‘stretch’ that happens when the endpapers are glued in the next step.



3. With the book block in place, place a sheet of waste paper inside the front endpapers. You will need to work quickly and carefully from this point. Apply PVA to the endpaper (glue under and then over the mull/fraynot) and swiftly take away the waste paper without lifting the endpaper. The endpaper will begin to curl.

We recommend trying this step without the PVA just to get a feel for it.

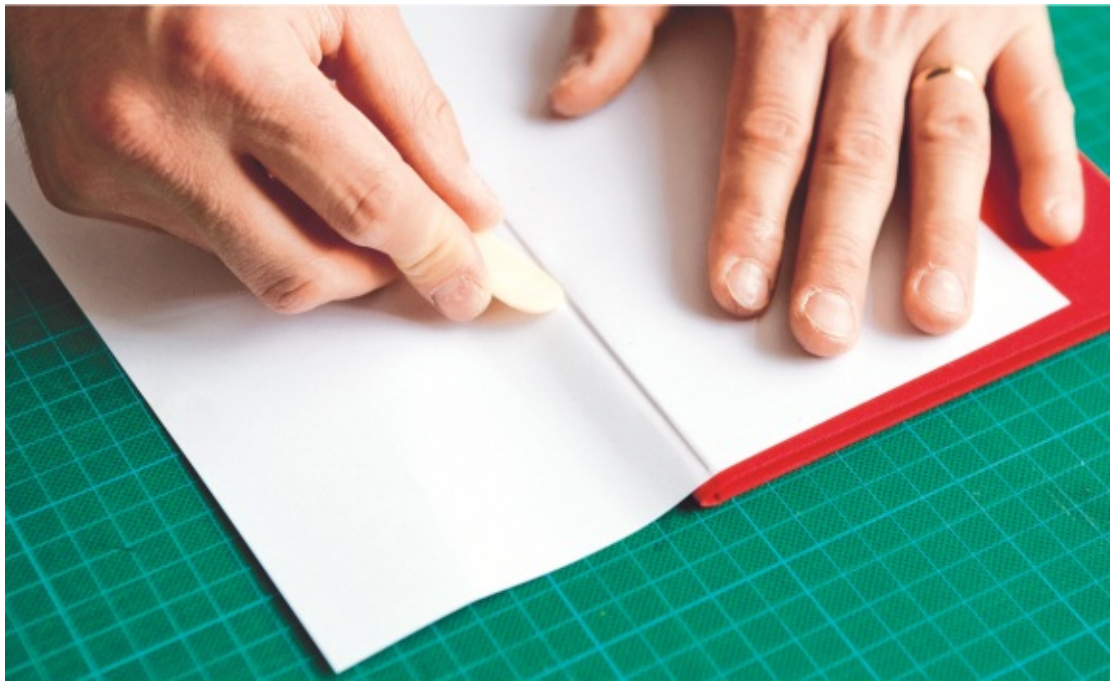
4. Hold and steady the book block and case as pictured, and with your thumb and forefinger held against the fore-edge (to prevent the book block from shifting), close the front cover onto the endpaper. Make sure that everything is in position and

aligned. Press down firmly on the cover.

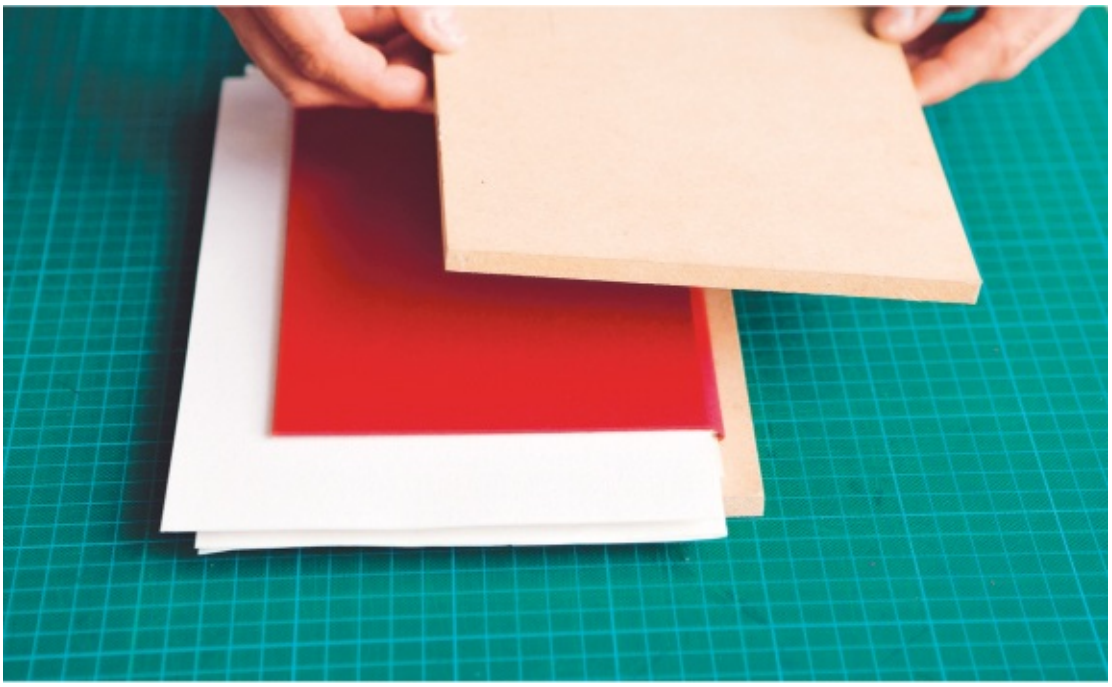
5. Flip the book over, and open the book slightly (if you open the book too wide, you will damage the endpaper) and rub down the endpaper with a bone (or teflon) folder.

6. Repeat Steps 3, 4 and 5 for the back endpaper and cover

6. Repeat Steps 3, 4 and 5 for the back endpaper and cover.



7. Place a sheet of waste paper along the groove between the cover and spine, and rub down along the length to create a joint.



8. Place a sheet of blotting paper and barrier paper/plastic between the front and back endpapers. The blotting paper should be placed against the case/cover and the barrier paper/plastic should be placed against the book block.

9. Put the book between boards and place under weight overnight. Do NOT open the book until the glue is completely

overnight. Do NOT open the book until the glue is completely dry.

Double-section case binding

The **Double pamphlet** (here) can be used in place of a single section using the same casing-in technique as the **Single-section case binding** (here).

Materials

Text paper: Eight sheets of A4 paper, four sheets each of two different colours. No thinner than 80gsm and no thicker than 120gsm, long-grain. Any common copier paper will be fine for this project, but it must be long-grain.

Linen thread, 18/3 or 25/3 thickness, approximately 45cm (18in).

Waste paper.

Endpapers: Two sheets of A5 decorative or coloured paper for endpapers. No thinner than 90gsm and no thicker than 120gsm, short-grain.

PVA glue.

Mull or fraynot calico, 50 x 140mm (2 x 5½in).

Greyboard: Sheet of 1.5mm greyboard no smaller than 180 x 250mm (7 x 10in), short-grain.

Bookcloth: Approximately 240 x 300mm (9¾ x 12in), short-grain.

Blotting paper/barrier paper.

Tools

Bone folder
Shoe knife
Metal ruler
Mechanical pencil
Awl
Bookbinding needle
Cutting mat
PVA glue
Brush
Scalpel
Scissors or shears
Triangle or set square
Boards/weight

HOW TO MAKE THE BOOK

Preparing the section

Prepare two sections and sew the two together following the steps described on here of the **Double Pamphlet**.

Casing-in the book

Attach endpapers and case in the sections following the steps

described on here of **Single-section case binding**.

Exposed spine binding

Similar to Japanese stab bindings, the bindings in this chapter have exposed spines that show off the intricacies of the stitching work usually left hidden behind the case. Exposed spine bindings, also known as unsupported link stitch, can be striking, especially when using colourful linen thread. It is akin to seeing the gears turning on a clock, displaying the structure and inner workings of a book.

You may have heard the term ‘coptic binding’ referring to books with exposed spines, but this is a slight misnomer as the coptic binding is a specific structure, different from other exposed spine bindings.

The link stitch binding is ideal for smaller books, or books that do not require a great deal of support. We recommend the French link stitch for larger, thicker books. The French link stitch binding, once cased in, becomes a multi-section case binding, the final project of this book.

Link stitch binding

Materials

See here for a note on paper sizes.

Sixteen sheets of colour A4 copier paper (80gsm, long-grain).

For the cover: two sheets of colour or decorative paper, no smaller than 150 x 250mm (6 x 9¾in), no thinner than 100gsm and no thicker than 175gsm, short-grain.

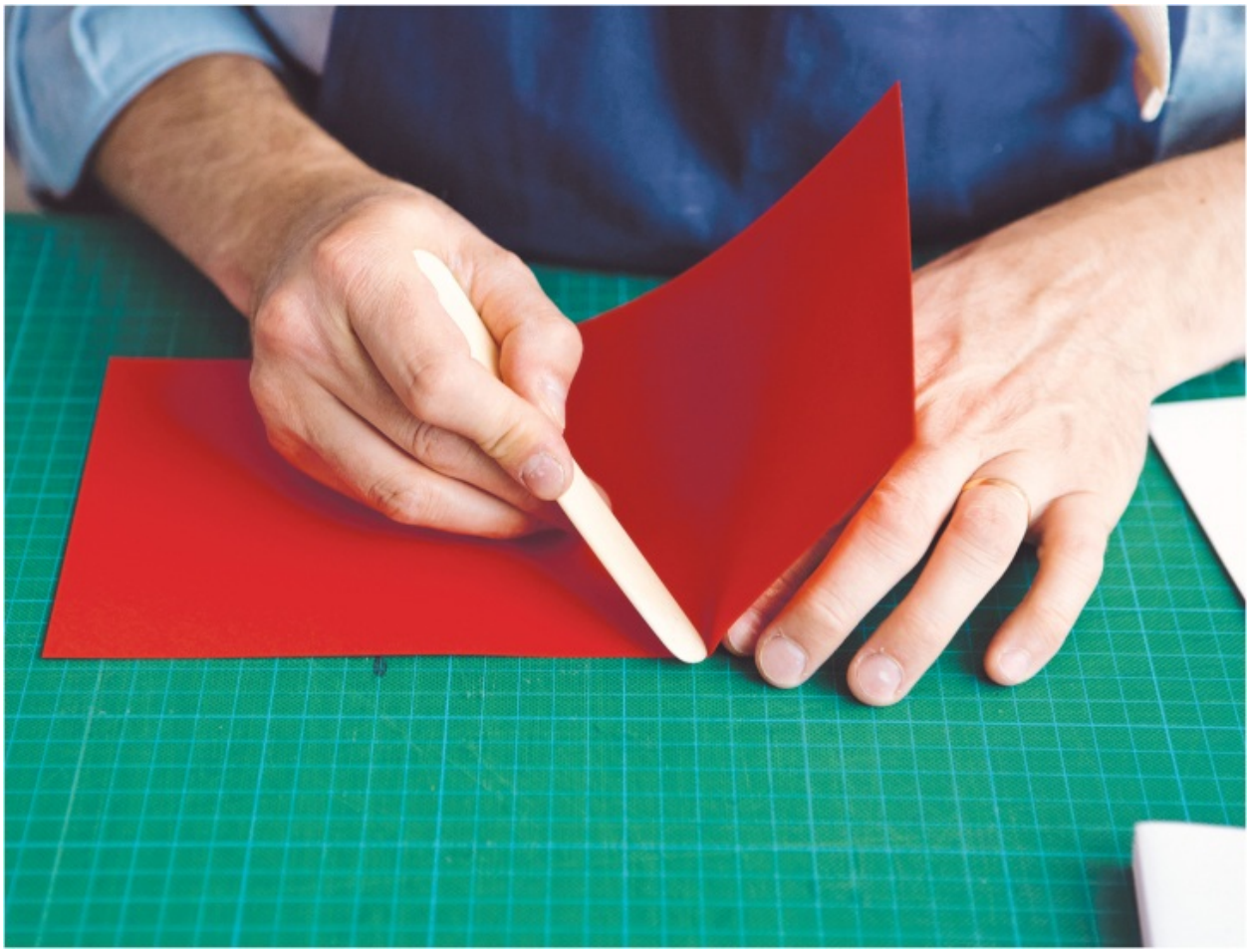
Linen thread, 18/3 or 25/3 thickness, approximately 2m (2¼ yd).

Waste paper.

Tools

Cutting mat
Bone folder
Scalpel
Metal ruler
Spring divider
Mechanical pencil
Scissors or shears
Bookbinding needle or curved needle
Boards/weight

How to make the book

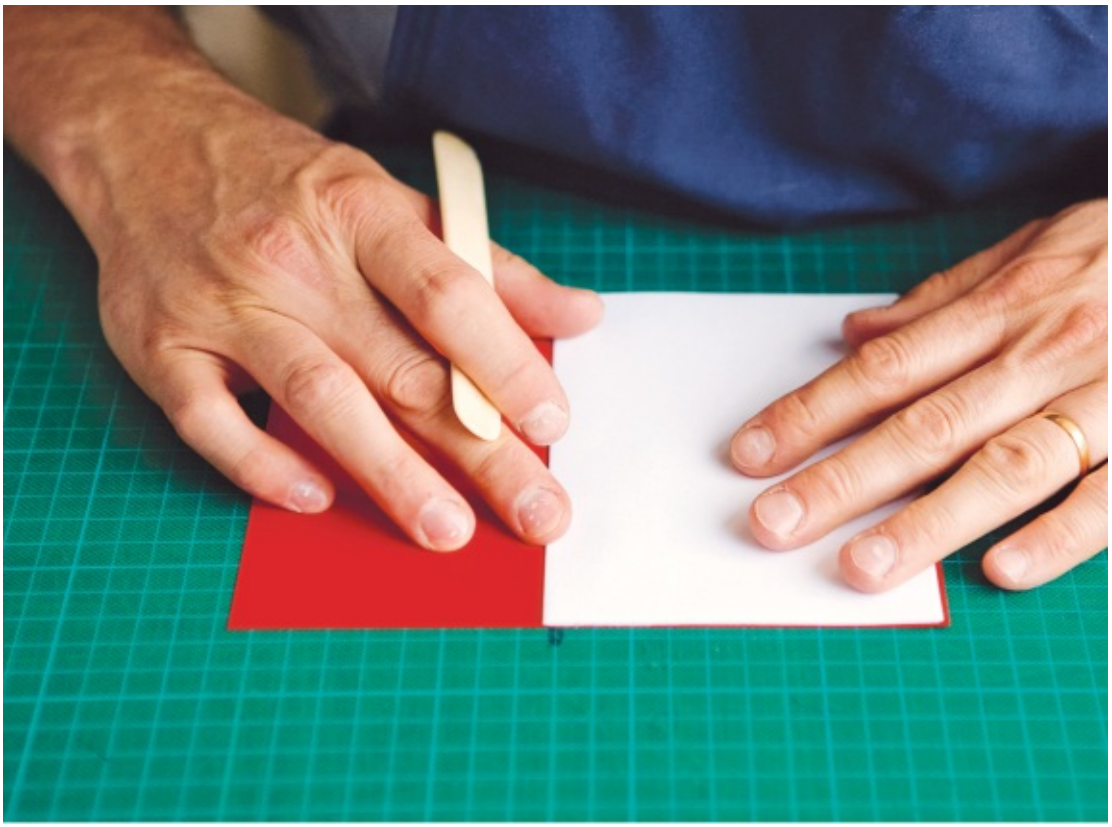


1. Prepare eight 16-page sections (see here), each made up of two sheets of A4 paper. If desired, neatly stack and place between boards under a weight.

2. Measure and trim the cover papers so that each sheet is the same height and two and a half times the width of one of the sections from Step 1 (this should be approximately 148 x 260mm).

3. Take one of the cover papers and, using one of the sections

as a guide, mark the width of a section from the left edge of the cover paper using the point of your bone folder. Take the section away. Fold the cover paper at the marks you just made, ensuring that it is square.



4. Leaving the cover folded, place one of the sections back onto cover so that the fore-edge of the section is approx 1mm in from the folded edge of the cover. With the tip of a bone folder, mark where the spine of the section lies on the cover. Take away the section and fold the cover again along the marks.

5. Place a section inside the fold from Step 4 with the spine along the folded edge.

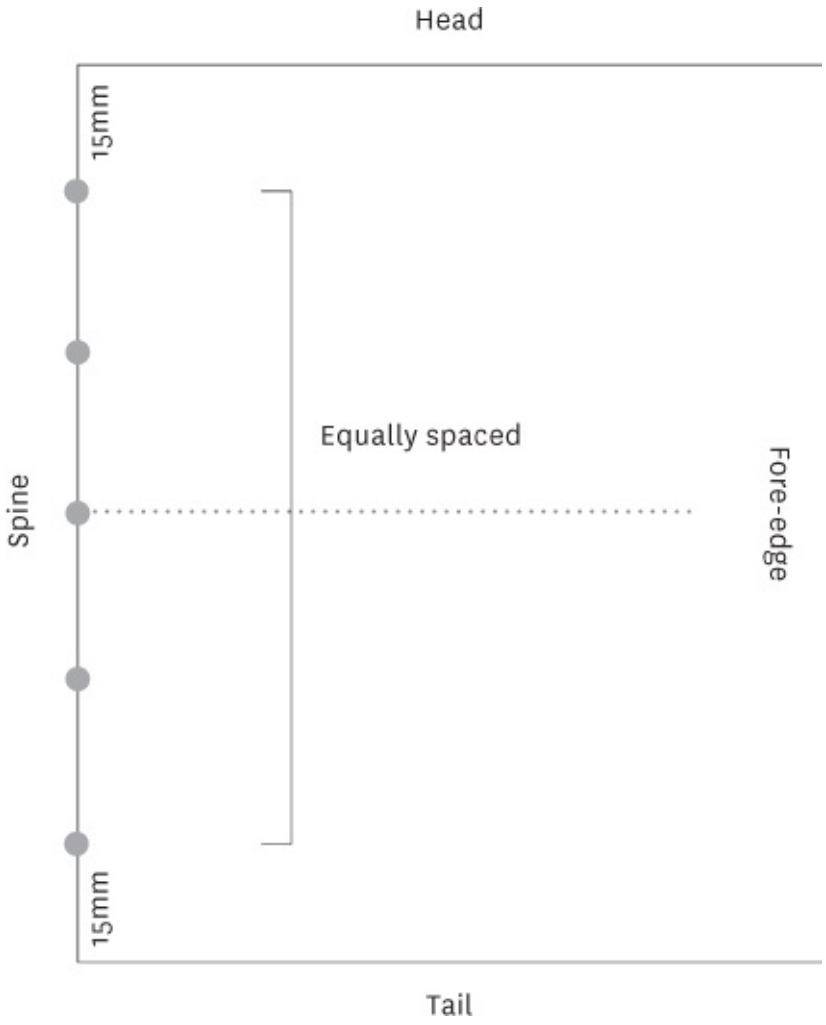
6. Open the flap and place a section inside it with the spine folds aligned.

7. Repeat Steps 3–6 for the back cover.

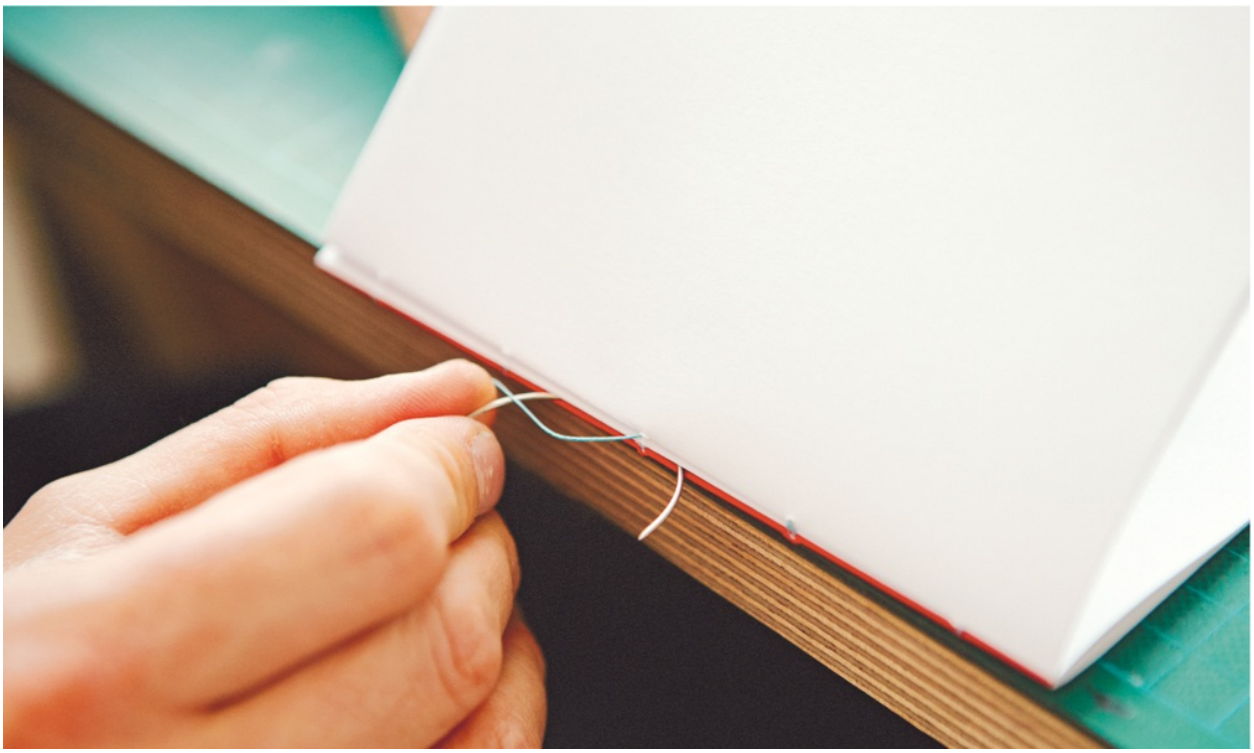
8. Assemble the book, ensuring that the first and last sections are placed inside of the short folds of the covers. If desired, place between boards and under a weight before you begin sewing the sections.

9. Make a sewing station template: take a piece of waste paper and cut to the same height as your section. Using this, mark five sewing stations as per diagram.

Mark two sewing stations 15mm (⅔in) in from the head and tail). Mark three more sewing stations by dividing the distance (using a spring divider) between the first two stations.



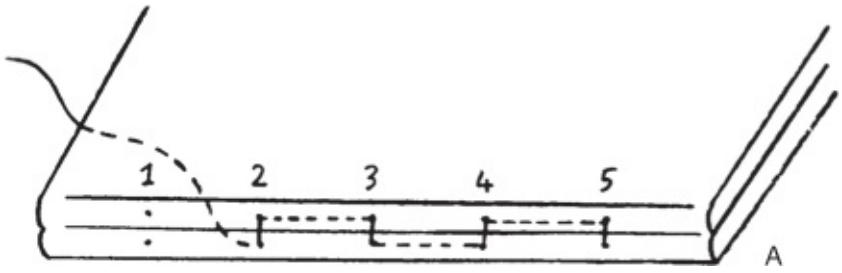
10. With the marks as a guide, pierce the holes in each section (including through the first and last section and covers) making sure to keep the order and orientation (this will ensure that your finished book will have a neat head and tail). Follow the steps described on here to pierce the sewing holes.



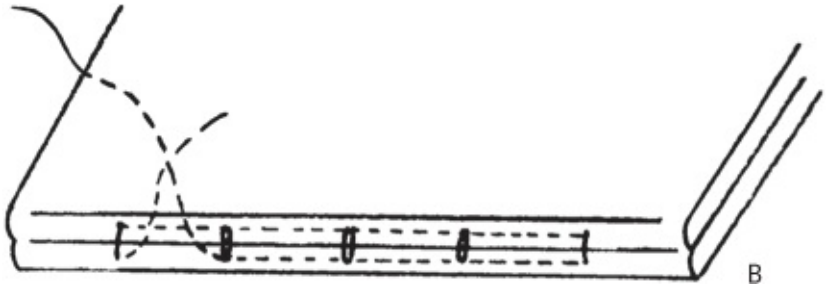
Sewing

1. Thread a needle with approximately an arm's length of linen thread (1m/1yd). Wax the thread if needed. Place section 1 (including cover) and section 2 on to the work surface with the spine along the edge. As you begin sewing, be sure to keep an even tension, and keep the section in a neat stack, in order and orientation. Try not to pick up the book as you are sewing.

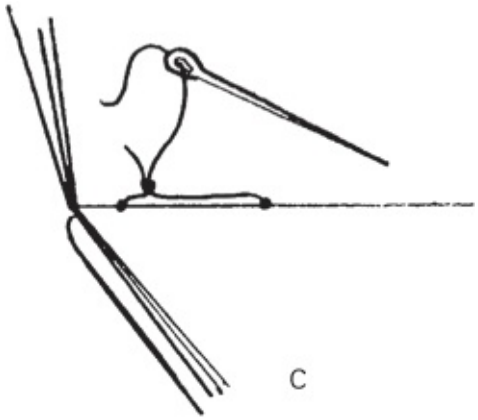
2. Begin sewing from the inside of station 2, section 1, and pull your thread through to leave a 6cm (2½in) tail. Once outside of section 1, go into station 2, section 2, out of station 3, section 2, and back into section 1, through station 3, and so forth until going back into section 1 through station 5 (A).



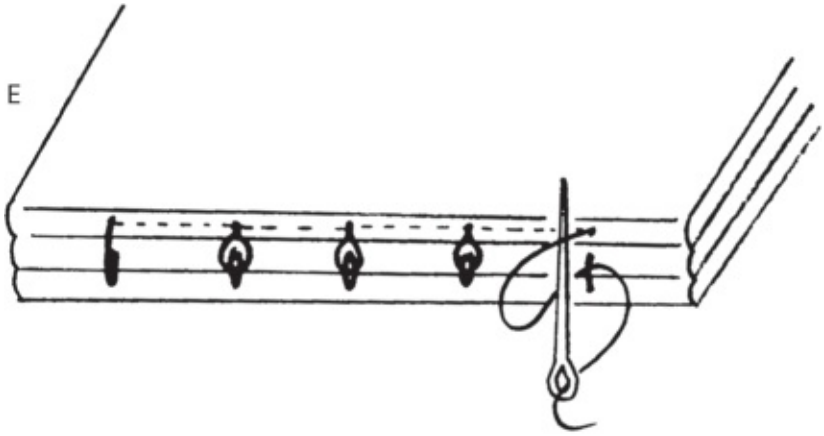
3. From station 5 of section 1, go back out of the section at station 4 and into section 2, station 4, and so forth until you go back inside section 1 at station 1 (B).

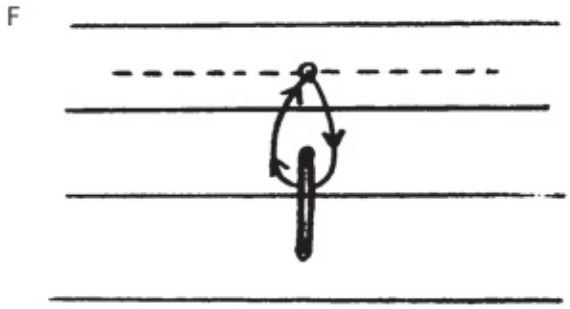


4. Once inside of section 1 at station 1, tie a reef knot with the 6cm (2½in) tail (Step 2), making sure the knot is as close to section 1 at station 1 as possible (C).



5. Place section 3 on top of section 2. Go back out of section 1, station 1, and into section 3, station 1 (D). Although the following steps can be done with a regular bookbinding needle, if you have one, this is a good point to change your needle to a curved one.





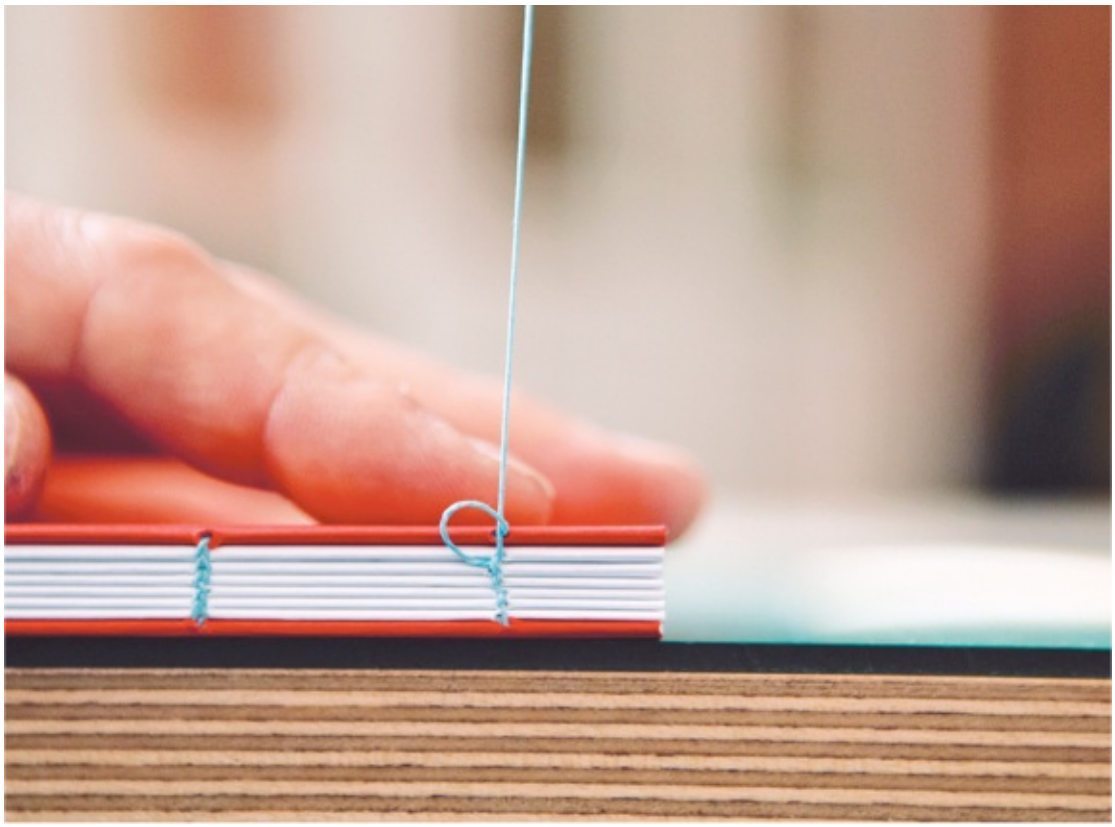
6. Go out of section 3 through station 2 and ‘link’ back to the exposed stitch below as illustrated and back into section 3 (E and F).

7. Repeat Step 6 for station 3 and 4. Come out of section 3 through station 5 and tie a kettle stitch (see here) between section 1 and 2, ensuring the kettle stitch is not too tight.

8. Place section 4 on top of section 3. Go into section 4 through station 5, come out of the section through station 4 and link

station 3, come out of the section through station 4 and link back to the exposed stitch below and back into section 4. Do the same for station 3 and 2, and once you come out of station 1, tie a kettle stitch between section 2 and 3.

9. Follow Steps 6–9 until you finish sewing the final section, section 8.



10. After the last kettle stitch, re-enter section 8 and tie a reef knot.

11. Once the sewing is complete, use a bone folder to tidy the spine, and use a shoe knife to cut free the pages at the head and fore-edge.

French link stitch

Materials

See here for a note on paper sizes.

Eight sheets of A2 paper, no thinner than 80gsm and no thicker than 130gsm, short-grain.

For the covers: two sheets of decorative or coloured paper 210 x 370mm (8¼ x 14½in), no thinner than 100gsm and no thicker than 175gsm, short-grain.

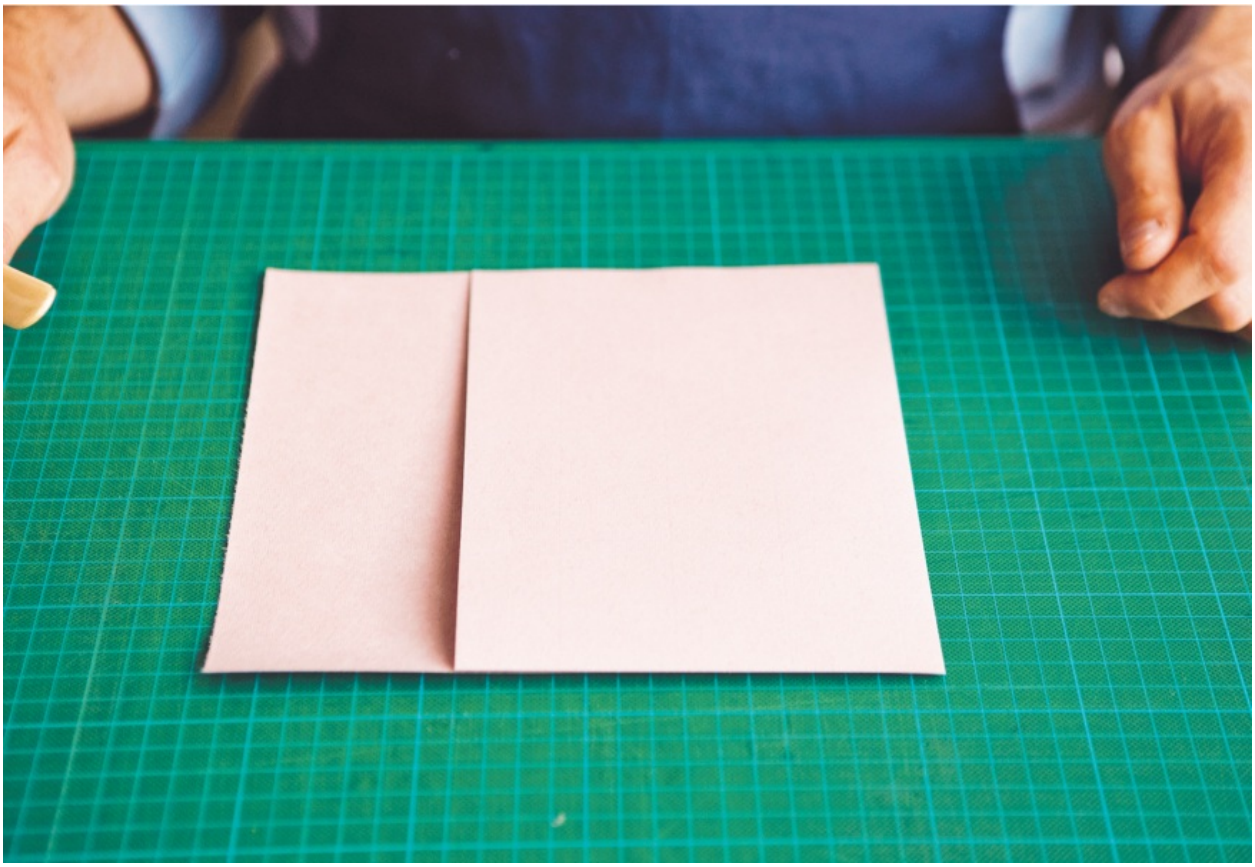
Linen thread, 18/3 or 25/3 thickness, approximately 2m (2¼yd).

Waste paper.

Tools

Bookbinding needle
Cutting mat
Bone folder
Spring divider
Scalpel
Metal ruler
Mechanical pencil
Scissors or shears
Boards/weight

How to make the book



1. Prepare eight sections from the A2 sheets of paper (here). The sections will be A5.

2. Measure and trim the cover papers so that each sheet is the same height and two and a half times the width of a section from Step 1 (this will be approximately 210 x 370mm/8¼ x 14½in). Make sure the strips are short-grain.

3. Take one of the cover papers and, using one of the sections as a guide, mark the width of a section from the left edge of the cover paper using the point of your bone folder. Take the section away. Fold the cover paper at the marks you just made,

ensuring that it is square.

4. Leaving the cover folded, place one of the sections back onto cover so that the fore-edge of the section is approx 1mm in from the folded edge of the cover. With the tip of a bone folder, mark where the spine of the section lies on the cover.

5. Take away the section and fold the cover again along the marks.

6. Place a section inside the fold from Step 5 with the spine along the folded edge.

7. Open the flap and place a section inside it with the spine folds aligned.

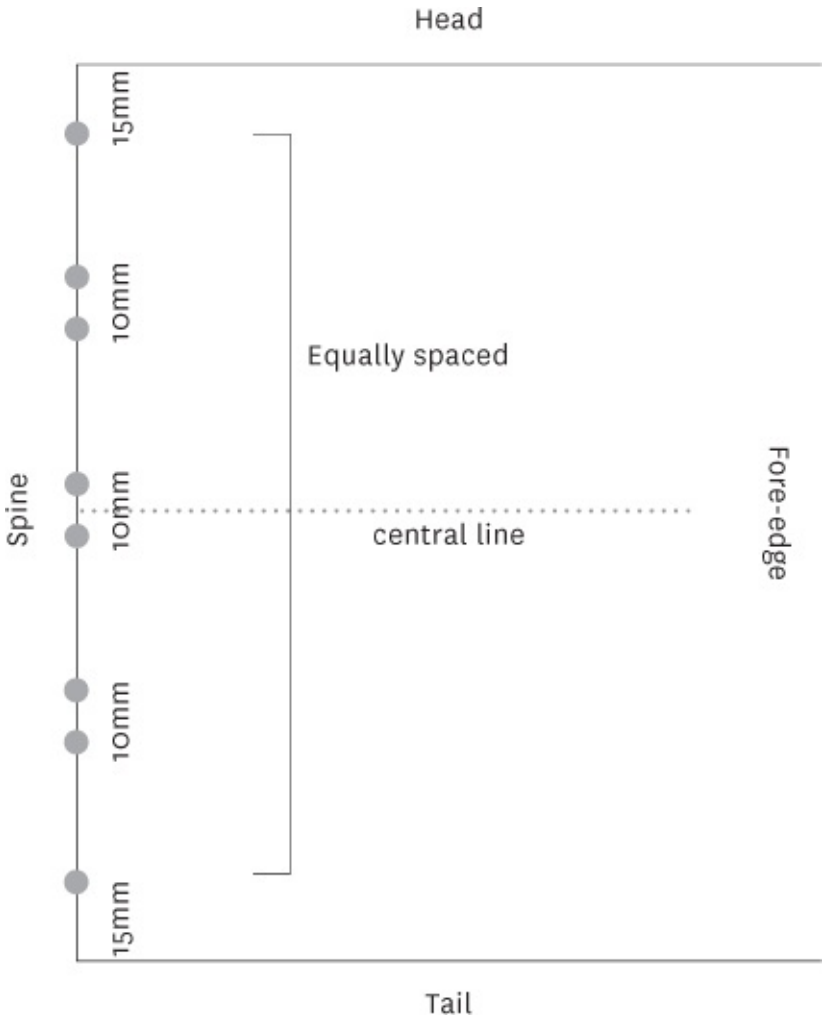
8. Repeat Steps 3–6 for the back cover.

9. Assemble the book, ensuring that the first and last sections are placed inside of the short folds of the covers. If desired, place between boards and under a weight before you begin sewing the sections.

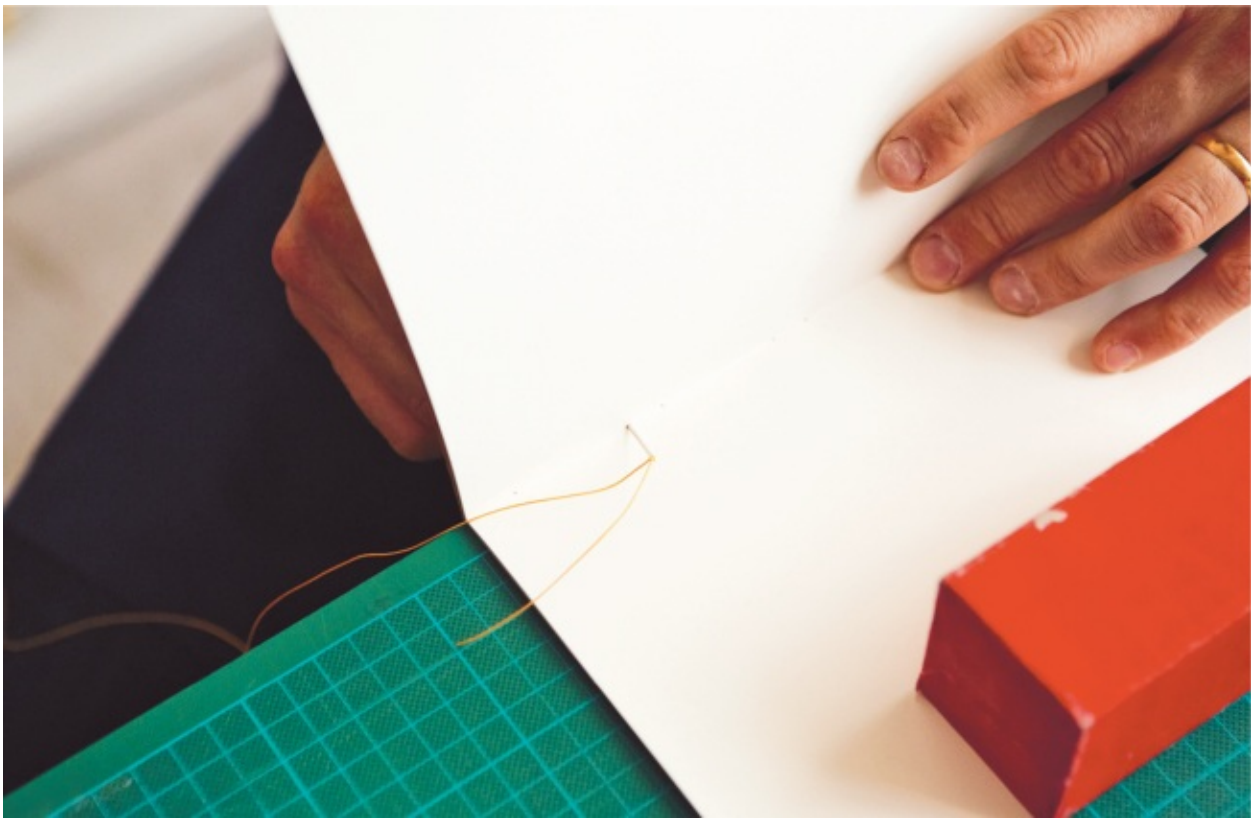
Sewing

1. Make a template: take a piece of waste paper and cut to the same height as your section. Using this, mark eight sewing stations as per diagram.

> Mark two sewing stations 15mm (⅔in) in from the head and tail. Mark three more pairs of sewing stations by dividing the distance (using a spring divider) between the first two stations.

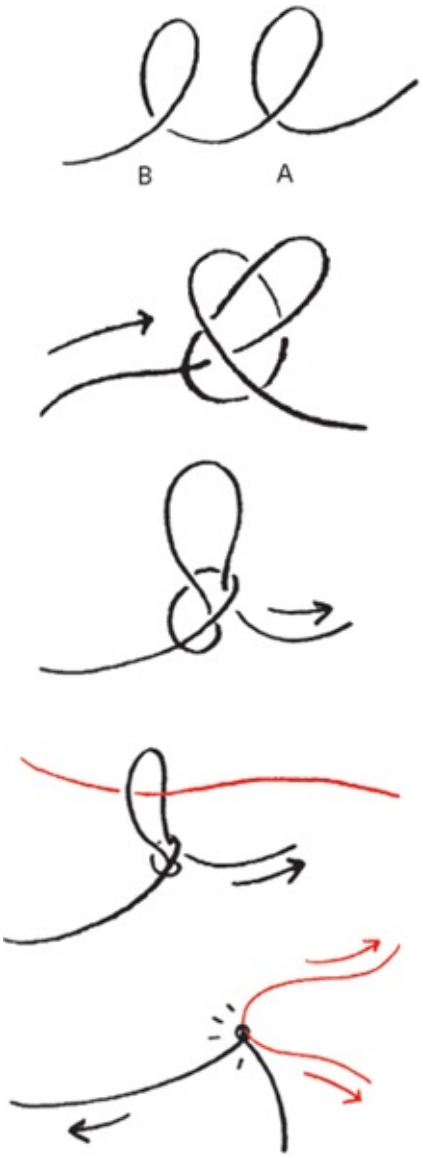

Head
15mm
10mm
Equally spaced
Spine
10mm
central line
Fore-edge
10mm
15mm
Tail

2. With the marks as a guide, pierce the holes in each section (including through the first and last section and covers) making sure to keep the order and orientation (this will ensure that your finished book will have a neat head and tail). Follow the steps described on here to pierce the sewing holes.



3. Thread a needle with approximately an arm’s length of 25/3 linen thread (around 1m/1yd). Wax the thread if needed.

4. Place your first section (along with the cover, cover side down) on the work surface with the spine along the edge, and place a weight inside the section to hold it in place as you sew.



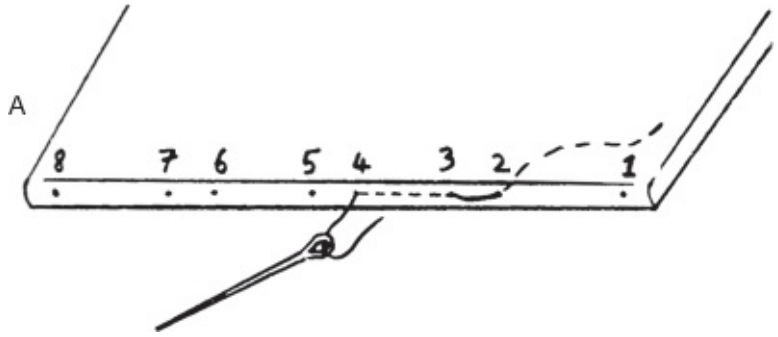
Weaver's knot

When sewing multiple sections, you will need to use a weaver's knot to join pieces of thread.

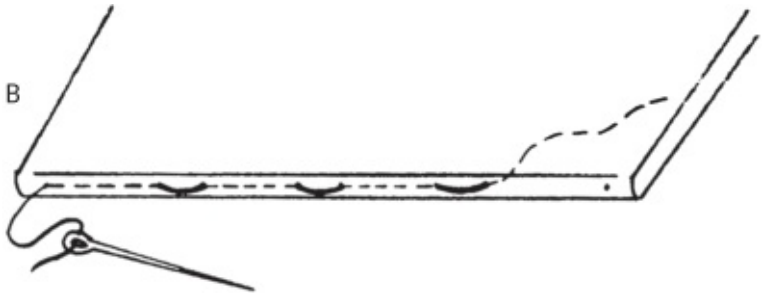
1. Make two loops in the new piece of thread.
2. Place the second loop (B) inside the first (A) to make a slip knot.
3. Pull on the end of the thread to close up the loop slightly.
4. Thread the other piece of thread (the old thread or one you

4. Thread the other piece of thread (the old thread of one you want to join to) through the loop.
5. Pull both ends of the new thread to trap the old thread.
6. Pull on the new thread and old thread and the knot will make a ‘click’ and lock into place.

5. Begin sewing, from inside of the section, through station 2, and pull your thread and leave a 6cm (2½in) tail inside the section (A).



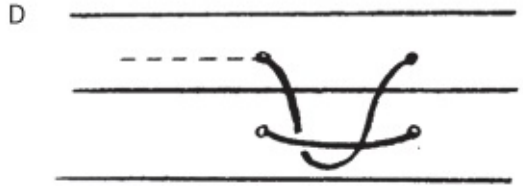
6. From there, thread the needle in through station 3 and back out through station 4, and so forth until you reach station 8 (B). Your needle and thread should be outside of the section at this point.



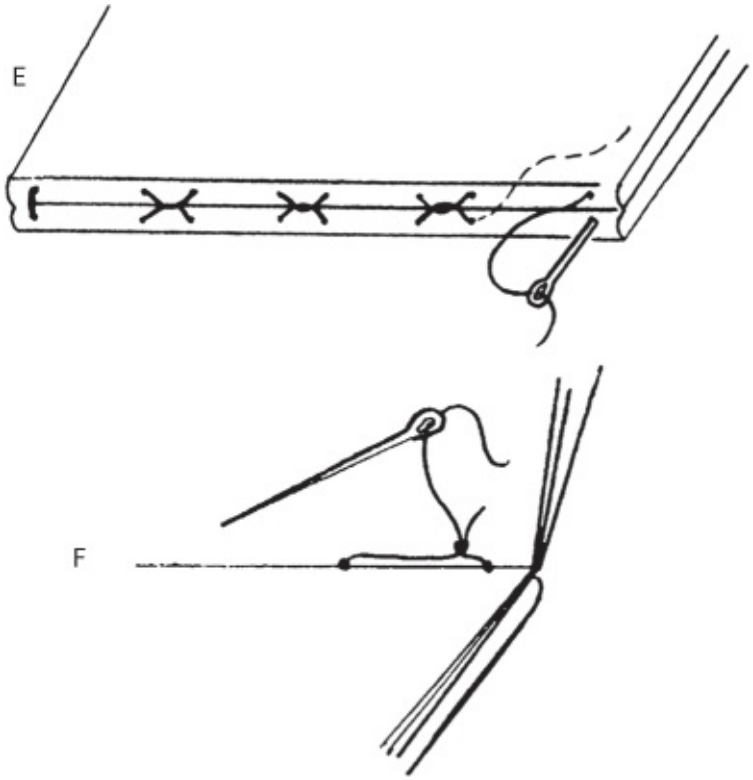
7. Remove the weight and place your second section down on top of the first, ensuring that the spine folds are aligned nicely. Place the weight back inside the section. Do the same after each additional section

8. Continue sewing, and thread the needle through station 8 of section 2, and come back out of station 7 (C). At this point, you will ‘link’ the two sections by threading a needle through the

stitch between station 6 and station 7 of the first section, and then back into station 6 of section 2. The needle goes through under the loop at the previous section, and back into the second section (D). From this point, make sure to link the sections at each sewing station.

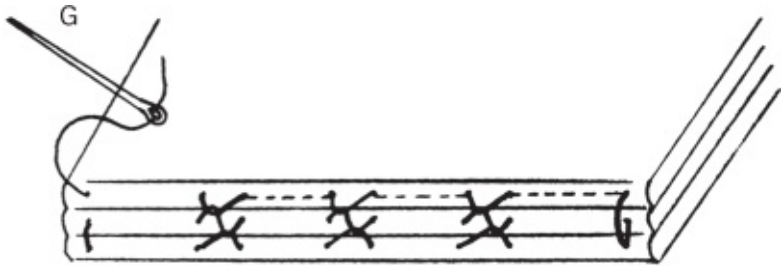


You will need to make sure that your sewing tension is even throughout the sewing process. When you are pulling on your thread to tighten the tension, be sure to pull the thread parallel to the spine, this will help to avoid tears.



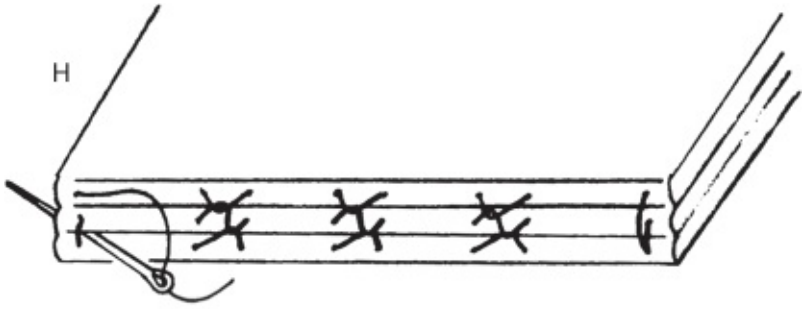
9. At station 1 of section 2, ensure that the thread is pulled taut, and go back inside of section 1 through station 1 and tie a reef knot with the tail from step 1 (E and F).

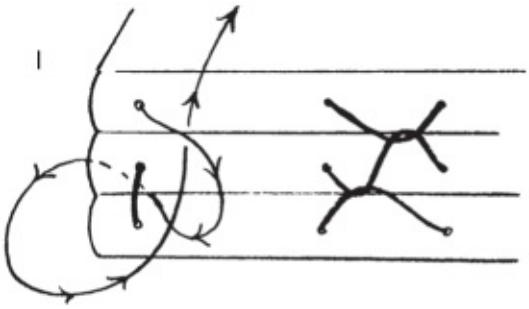
10. Go back out of section 1 through station 1.

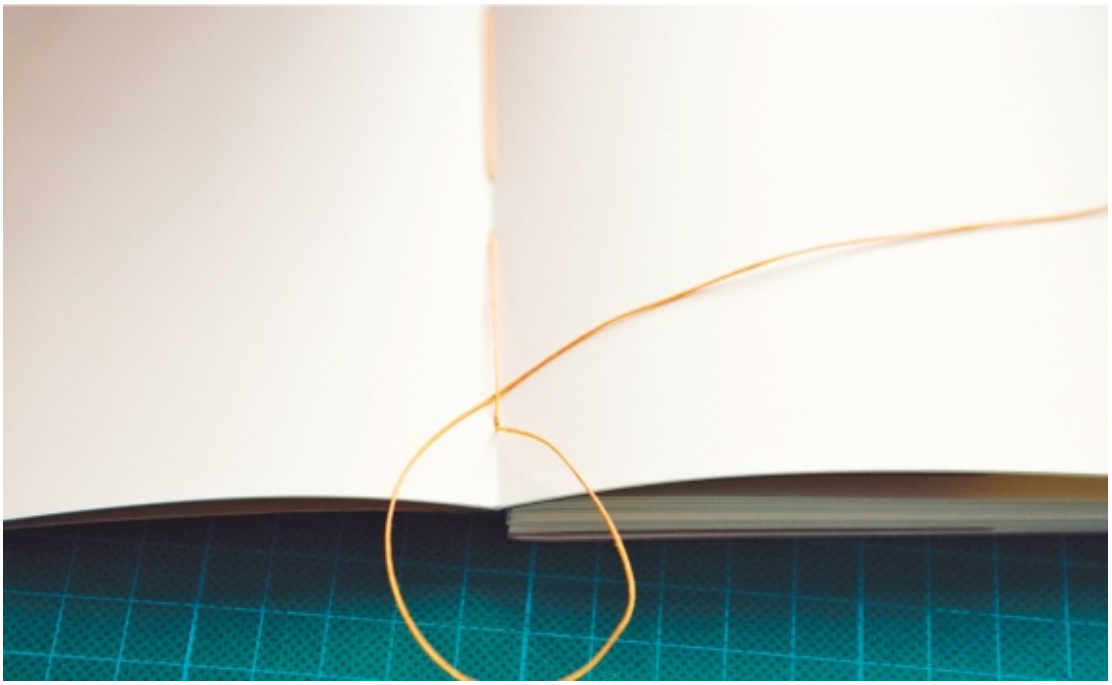


11. Place the third section down on top of the second, and insert the needle and thread into section 3 at station 1. Continue sewing by going out of station 2 of section 3 and link back to section 2 at stations 2 and 3. Continue as before, linking the thread back to the previous section each time until coming out at station 8 (G).

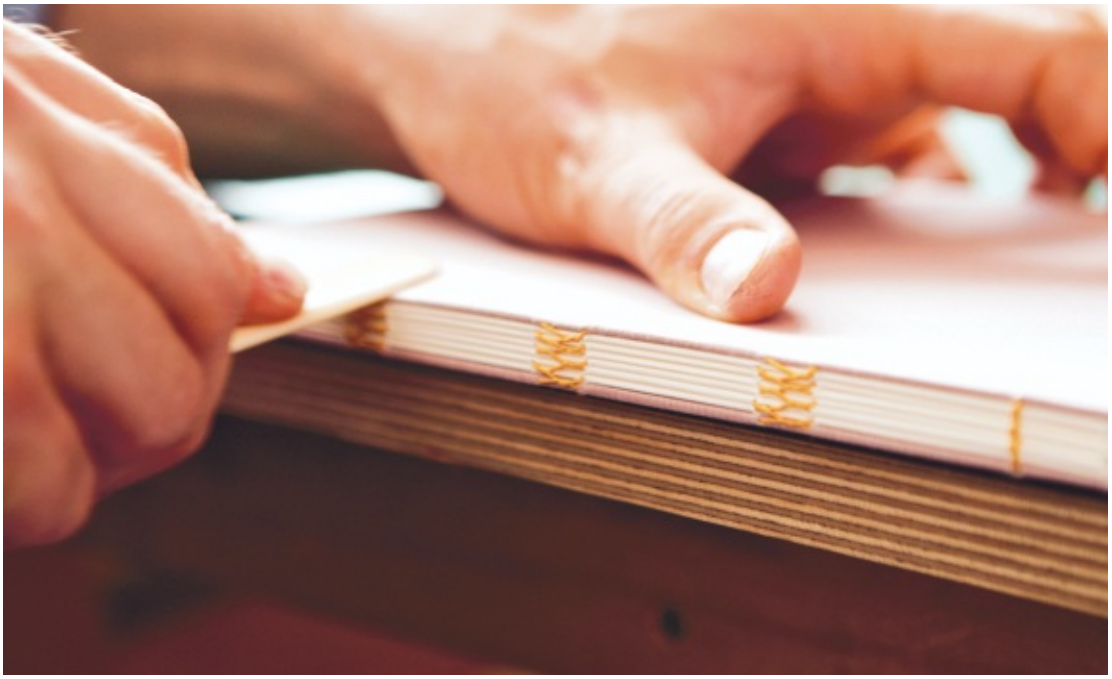
12. It’s at this point that you need to sew a kettle stitch (see H, I and here).







13. Continue by repeating this procedure until all of the sections are sewn. To finish, tie a kettle stitch, and go back into section 8, station 1 and tie a reef knot against the stitch and cut any loose threads to leave a short 1–2mm tail.



14. Once the sewing is complete, use your bone folder to press the sections at the spine folds, to tidy any sewing holes, and

the sections at the spine folds, to tidy any sewing holes, and use your shoe knife to cut free the head and fore-edge of sections that are still intact.

Multi-section case binding

Once you have tried your hands at the different binding techniques in the previous chapters, the Multi-section case binding should be a simple next step.

The following chapter will guide you through the steps of creating two variations of a classic, full cloth-covered multi-section case-bound book. As we have described previously, a case binding consists of a text block ‘cased in’ between a front and back cover, made of covered board, with a spine. A multi-section case-bound book typically includes all of the different elements of a book (covers, spine, endpapers, headbands, and ribbon) described in the **Anatomy of a book** (here).

Along with new skills and techniques, the projects in this chapter will introduce new design elements to the book, including endbands and ribbons. Think carefully about the interactions of colour and texture between all of the elements in order to create the best book possible for each project and occasion.

Flat-back case binding

Materials

See here for a note on paper sizes.

Eight sheets of A2 paper, no thinner than 80gsm and no thicker than 130gsm, short-grain.

Endpaper: Sheet of decorative paper, no thinner than 100gsm and no thicker than 140gsm, short-grain.

Greyboard: Sheet of 2mm greyboard no smaller than 250 x 350mm (9¾ x 13¾in), short–grain. Plus two extra sheets of greyboard – working boards – the same height or bigger than the book, any thickness, either grain direction.

Bookcloth: Approximately 350 x 450mm (13¾ x 17¾in), short-grain.

Linen thread: 25/3, approximately 2m (2¼yd).

Mull or fraynot: A strip approximately 210 x 50mm (8¼ x 2in), long-grain.

Kraft paper: A strip approximately the same size as the mull or fraynot, long-grain.

Two sheets of blotting paper.

Two sheets of barrier paper or plastic.

Headbands (optional): approximately two 2cm (¾in) strips (depending on the thickness of the book).

Ribbon (optional): 3mm (⅛in) wide, two and a half times the height of the book (approximately 60cm/24in).

PVA glue.

Waste paper.

Tools

Bookbinding needle
Cutting mat
Bone folder
Spring divider
Scalpel
Metal triangle or set square
Glue brush
Metal ruler
Mechanical pencil
Scissors or shears
Boards/weight

This picture shows the Flat-back case binding (top) and the Round-back case binding variation (bottom, here).

How to make the book

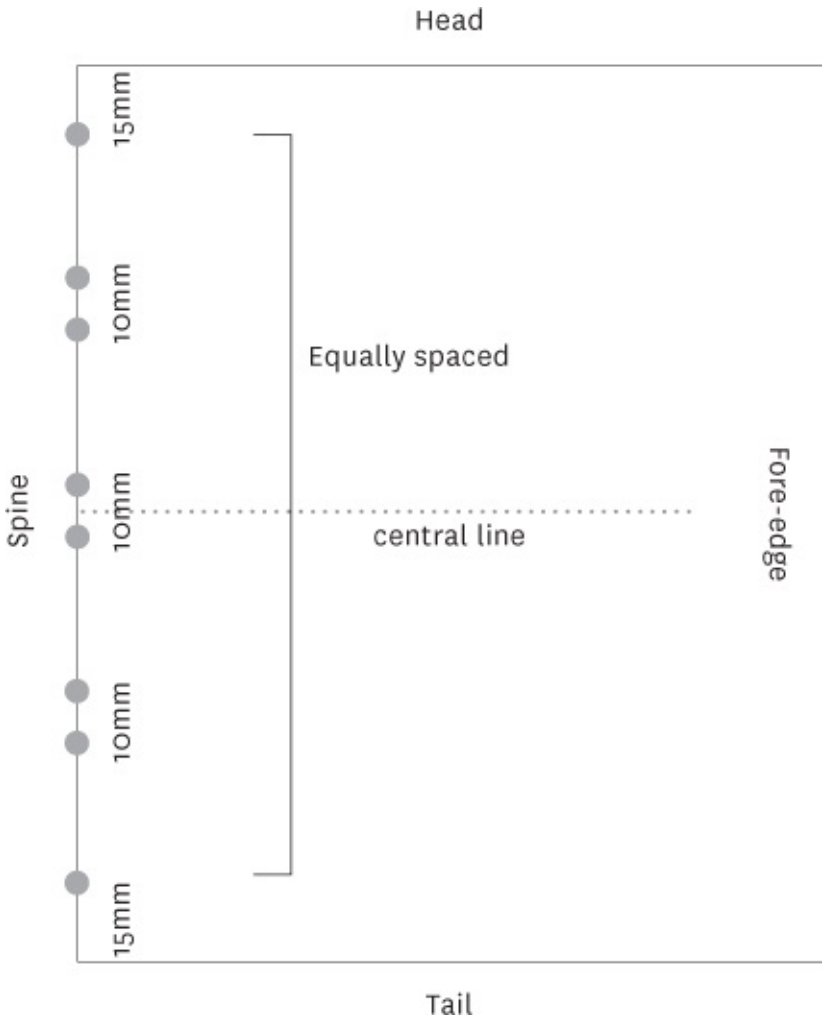
1. Prepare eight sections from the A2 sheets of paper. The sections will be A5.

2. Assemble the sections and place them between two boards and under weight for at least a few minutes, or longer if desired.

Sewing

1. Make a sewing station template: take a piece of waste paper and cut it to the same height as your section. Using this, mark eight sewing stations as per diagram.

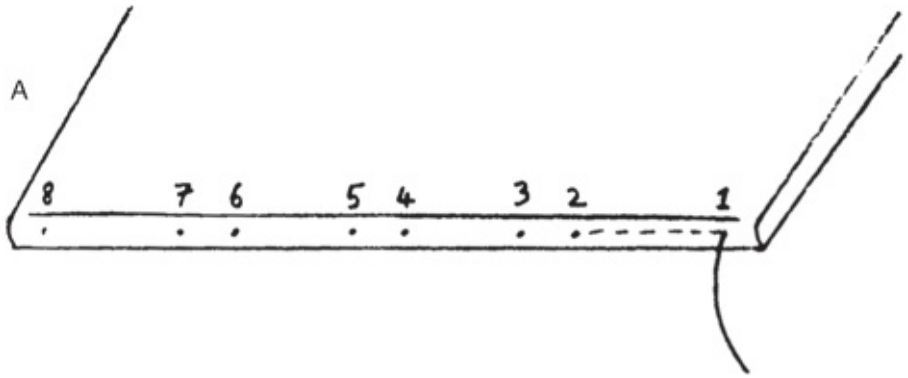
    Mark two sewing stations 15mm (⅔in) in from the head and tail. Mark three more pairs of sewing stations by dividing the distance (using a spring divider) between the first two stations.



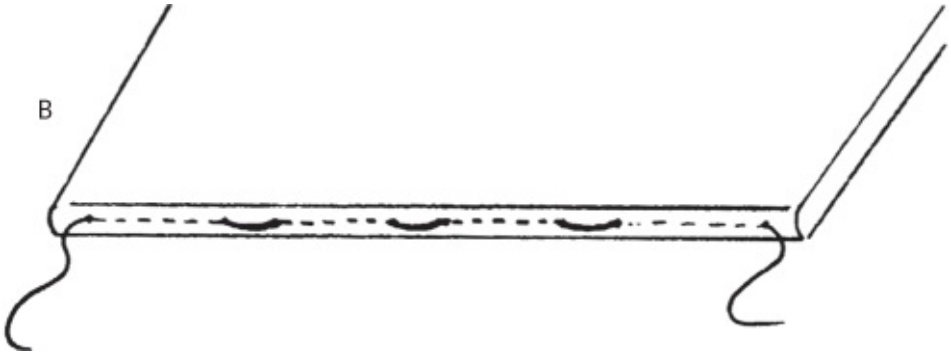
2. With the marks as a guide, pierce the holes in each section (including through the first and last section and covers) making sure to keep the order and orientation (this will ensure that your finished book will have a neat head and tail). Follow the steps described on here to pierce the sewing holes.

3. Thread a needle with approximately an arm's length of 25/3 linen thread (around a 1m/1yd). Wax thread if needed.

4. Place your first section on the work surface with the spine along the edge, and place a weight inside the section to hold it in place as you sew.

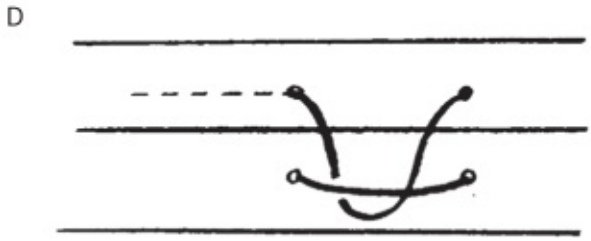


5. Begin sewing, from the outside in, through station 1 of the first section, and pull your thread through to leave approximately a 6cm (2½in) tail (A).

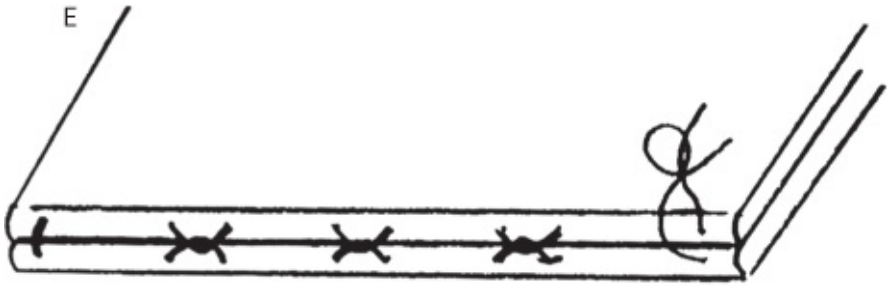


6. Once inside the section, thread the needle out through station 2 and back in through station 3, and so forth until you reach station 8. Your needle and thread should be outside of the section at this point (B).

7. Remove the weight and place your second section down on top of the first, ensuring that the spine folds are aligned nicely. Place the weight back inside the second section.

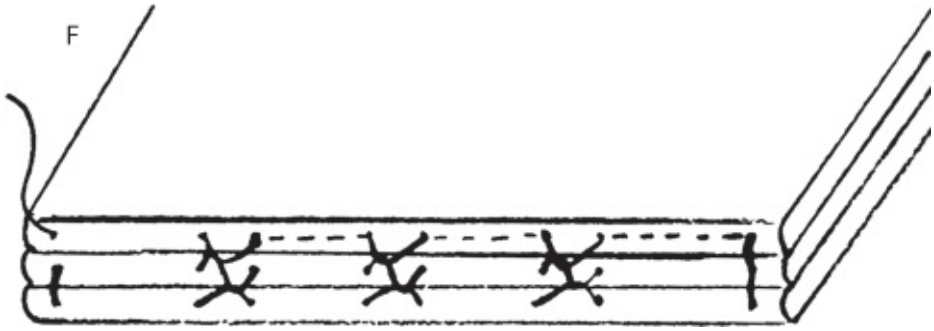


8. Continue sewing, and thread the needle through station 8 of section 2, and come back out of station 7. At this point, you will 'link' the two sections by threading a needle through the stitch between station 6 and station 7 of the first section, and then back into station 6 of section 2. The needle goes through under the loop at the previous section, and back into the second section. See (C) and close-up detail of linking back (D). From this point, make sure to link the sections at each sewing station.



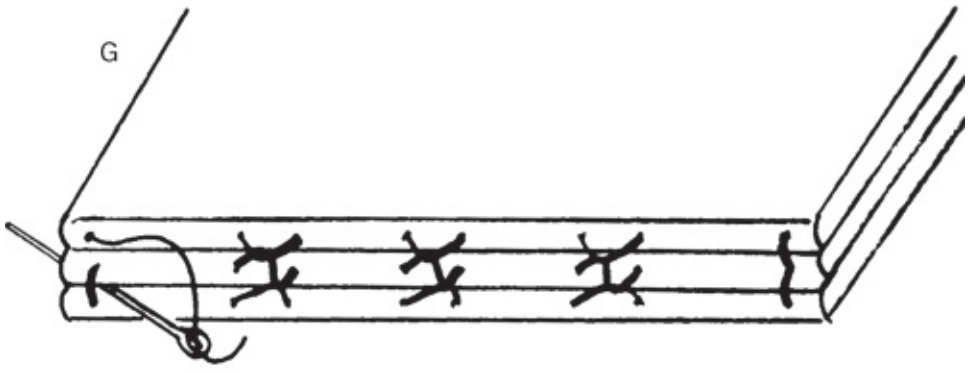
9. At station 1 of section 2, ensure that the thread is pulled taut. Tie section 1 and section 2 together by tying a reef knot with the loose end of Step 6 as per diagram (E).

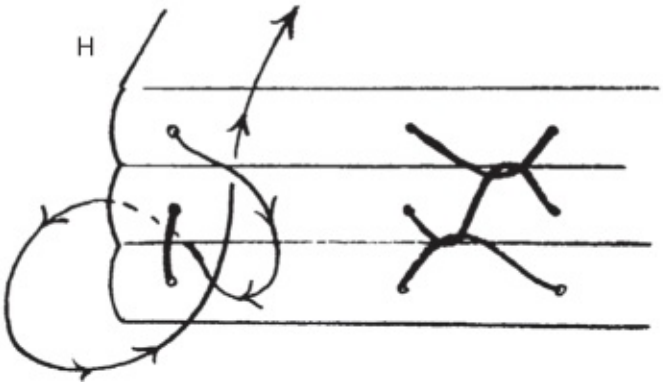
10. Place your third section down on top of the second, and continue sewing by going into station 8 of section 3. Continue as before, linking the thread back to the previous section until coming out at station 1.

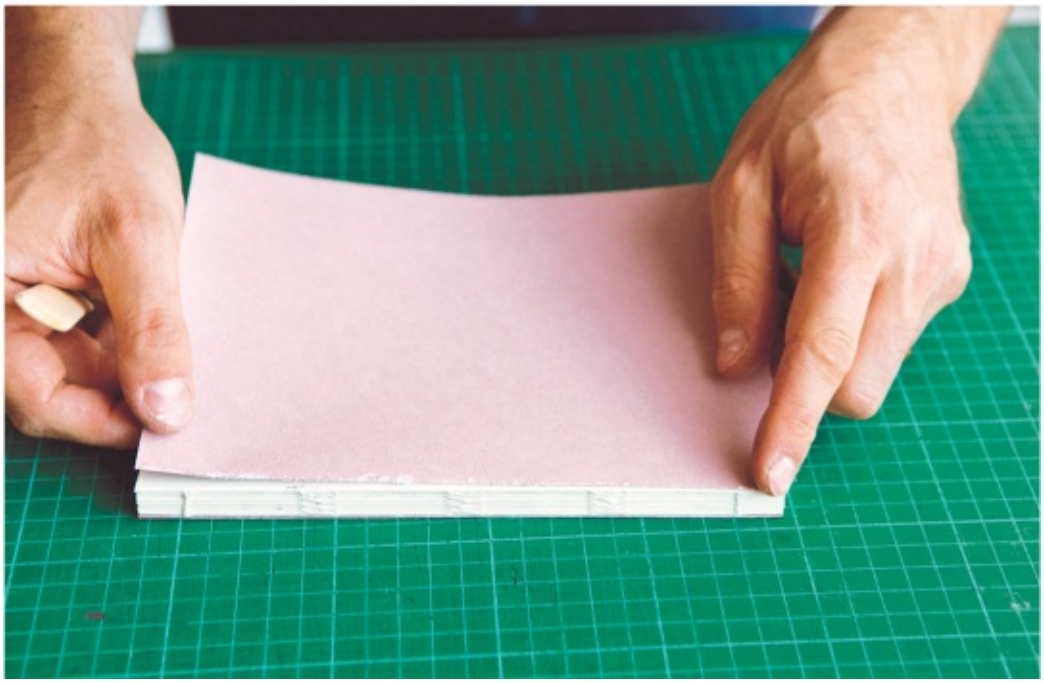


11. It’s at this point that you need to sew a kettle stitch (see G, H and here).

12. Continue by repeating this procedure until all of the sections are sewn. To finish, tie two kettle stitches in the last section, and cut any loose threads to leave a 1–2mm tail.


G


H



Preparing the book block

1. Place the sewn book block between two working boards, flush with the spine (this will prevent getting PVA anywhere other than the spine). Then, place the book block with working boards with the spine overhanging the edge of the work surface.

surface.

2. Apply pressure by pressing onto the top working board with your hand, or by placing a weight on it. With the glue brush, apply a thin layer of PVA to the spine, ensuring that the PVA fills the gaps between the sections – you may want to use your thumb to work the PVA into all of the gaps. Remove any excess PVA.

3. Let sit for 10 to 20 minutes until the PVA is somewhat dry. Take away the working boards (you may have bits of greyboard come off onto the text block, but no need to worry).

4. Attach endpapers to front and back covers, following the steps as described on here.

5. Once the endpapers have dried, use your shoe knife to free the attached pages (see here).

6. Measure and note the length and thickness of the spine.

7. Cut the Kraft paper to the same length and width (thickness) of the spine.

8. Cut the mull or fraynot 2cm (¾in) shorter than the length of the spine and 6cm (2½in) wider than the thickness of the spine.

Ribbon and headbands (optional)

1. Ribbon: With a glue brush, apply PVA to roughly half of the length of the spine and attach about 10cm (4in) of either end of the ribbon. Apply another thin layer of PVA over the ribbon.

2. Carefully tuck the ribbon between the pages of the book so that it is out of the way as you case-in the book.

3. Headbands: Measure and cut two pieces of pre-sewn headbands. The pieces should be just slightly shorter than the thickness of the spine.

4. Apply PVA directly onto the cloth portion of the headbands and attach to both head and tail of the spine – the sewn portion of the headbands should overhang the head and tail of the spine.

Historically, headbands were used in valuable books

Historically, headbands were used in valuable books decoratively, and to provide protection from daily wear (as the books were pulled out of shelves from their heads). Though traditionally hand-sewn by the bookbinder, headbands are now usually machine-sewn and used exclusively for decorative purposes. Ribbons are used as decoration and as a page marker in the book.

Lining the spine

1. Place the text block between the two working boards, and onto the working surface (as pictured), and apply PVA to the spine. Careful not to glue the sides of the text block or the coloured end of the endbands. Attach, or pitch, the mull or fraynot onto the spine, centred with about a gap of about 15mm (⅔in) from the head and tail.

2. Rub down with a bone folder, making sure the PVA is evenly applied and there are no air bubbles.

3. Apply another layer of PVA to the spine on top of the mull or fraynot.

4. Pitch the pre-cut piece of Kraft or manila paper onto the spine, centred, with about 25mm (1in) hanging over the head and tail. Rub down well to ensure no gaps are left between the spine and the Kraft paper.

5. Allow to dry for at least an hour.

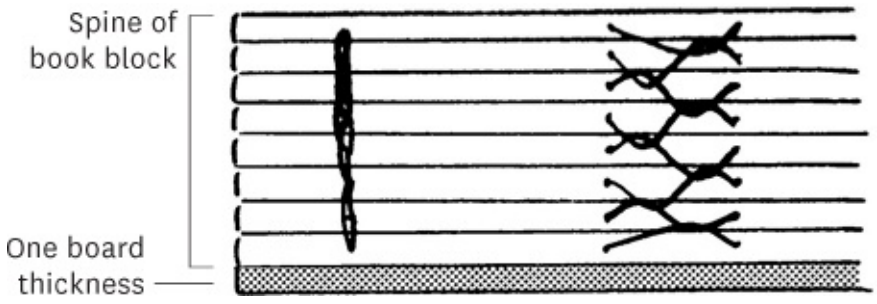
The case

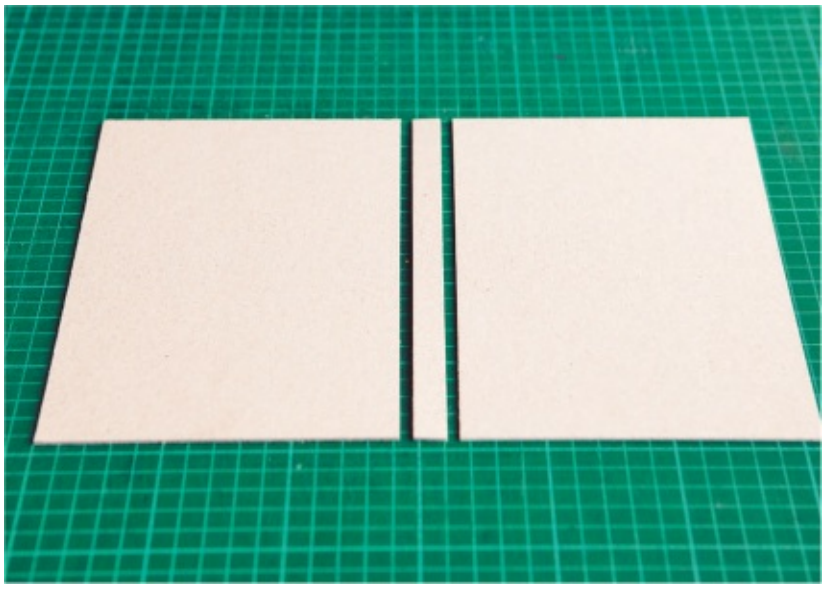
1. Measure and note the height, width and spine thickness of your book block.

2. Calculate and cut the piece of greyboard into three pieces:

the front and back boards and the spine piece. Follow the diagram on here to calculate front and back boards.

The height of the spine piece will be the same height as the front and back boards. The width of the spine piece will be the thickness of the spine, plus one board thickness (in this instance, 2mm).





3. Once the greyboard pieces are cut, assemble the boards and book block to make sure that the measurements are accurate. Check that the square of the book is even.

4. Place the assembled book on the work surface with about a third of the height hanging off the edge. Wrap a thin strip of waste paper firmly around the spine. Pinch the book with one hand, and with your other hand mark the distance between the front board and the back board (as pictured).

5. Remove the waste paper, lay it flat on the table and, with a spring divider, measure the distance between the two marks. Keep this measurement with the spring divider for later.

6. Take the sheet of bookcloth and, with a metal ruler and using the cutting mat grid as a guide, draw two lines, making a 90-degree angle leaving a 3cm (1¼in) border. Place the front cover board and lightly outline the board onto the bookcloth with a pencil.

7. With a glue brush, apply PVA to the area outlined, and lay the first board carefully on the cloth aligned to the two lines. Rub down with a bone folder.

8. Place a metal ruler along the bottom of the front board. Using the spring divider with the measurement taken in Step 5, leave a gap for the spine, and lightly outline the book board as pictured.

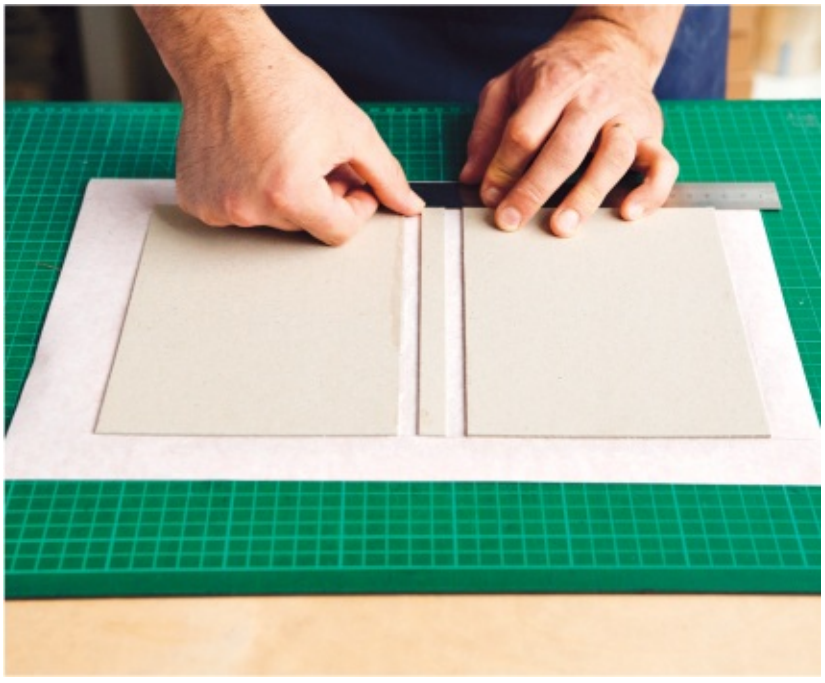
9. Apply PVA to the outlined area. Lay down the back board carefully onto the cloth – use the metal ruler and spring divider to make sure that the front and back boards are aligned and the spine gap is consistent from head to tail. Rub down with a bone folder.

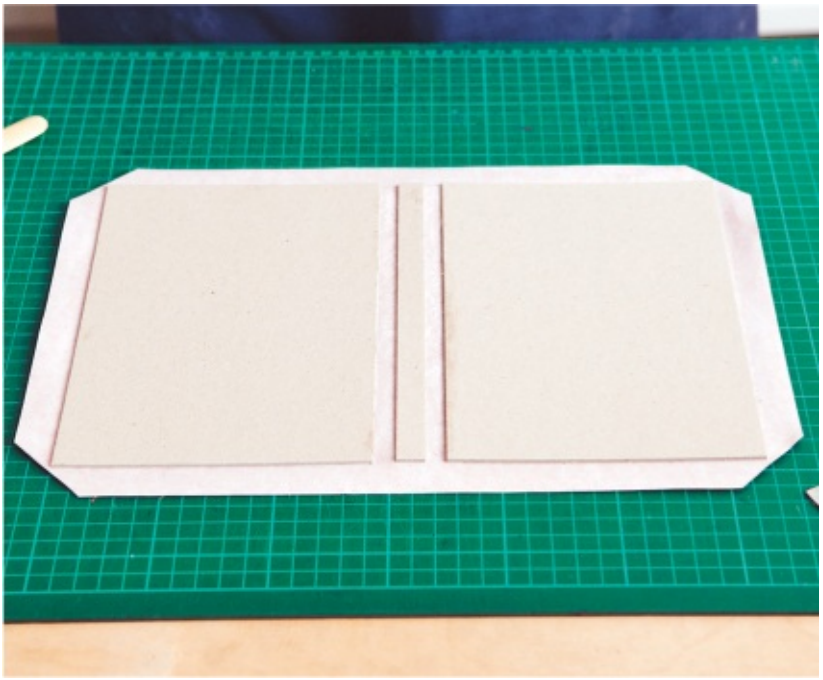
10. Apply PVA to the spine gap and place the pre-cut spine piece between the front and back boards (centred by eye). Rub down with a bone folder.

11. Trim the bookcloth, leaving a border of about 3cm (1¼in), and trim the corners at a 45-degree angle.

12. Fold and wrap the turnins following the steps on here. In addition, be sure to rub down the cloth between the boards in the spine gap.

13. Place between boards and under weights for 10–15 minutes if desired.





Casing-in the book

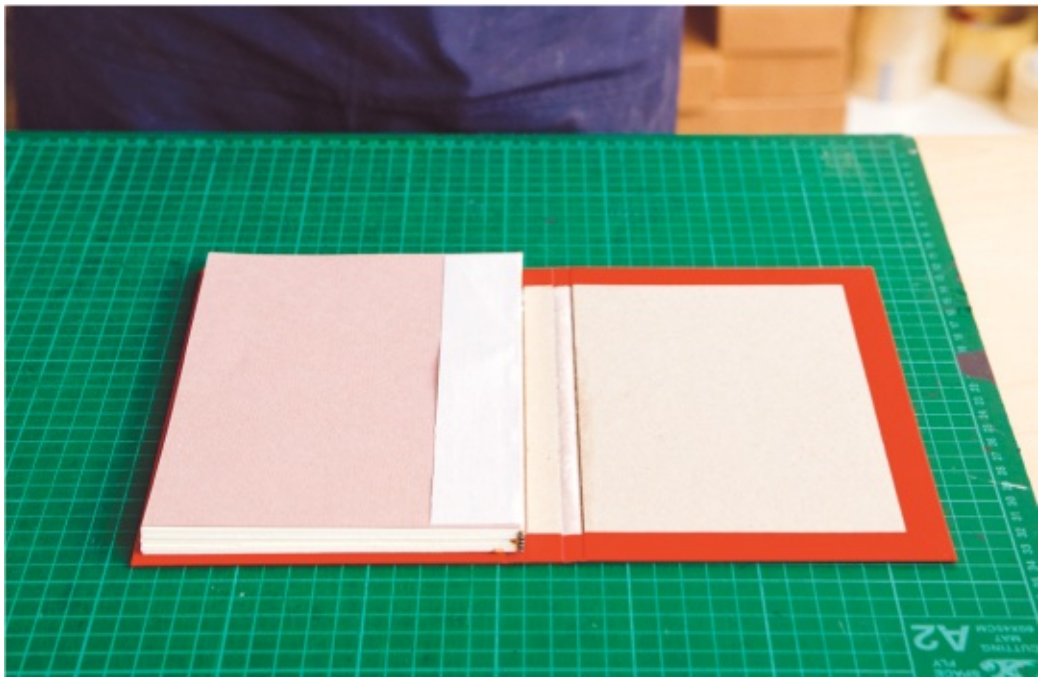
1. Place the book block inside of the case, making sure that the square is even at the head, tail and fore-edge.

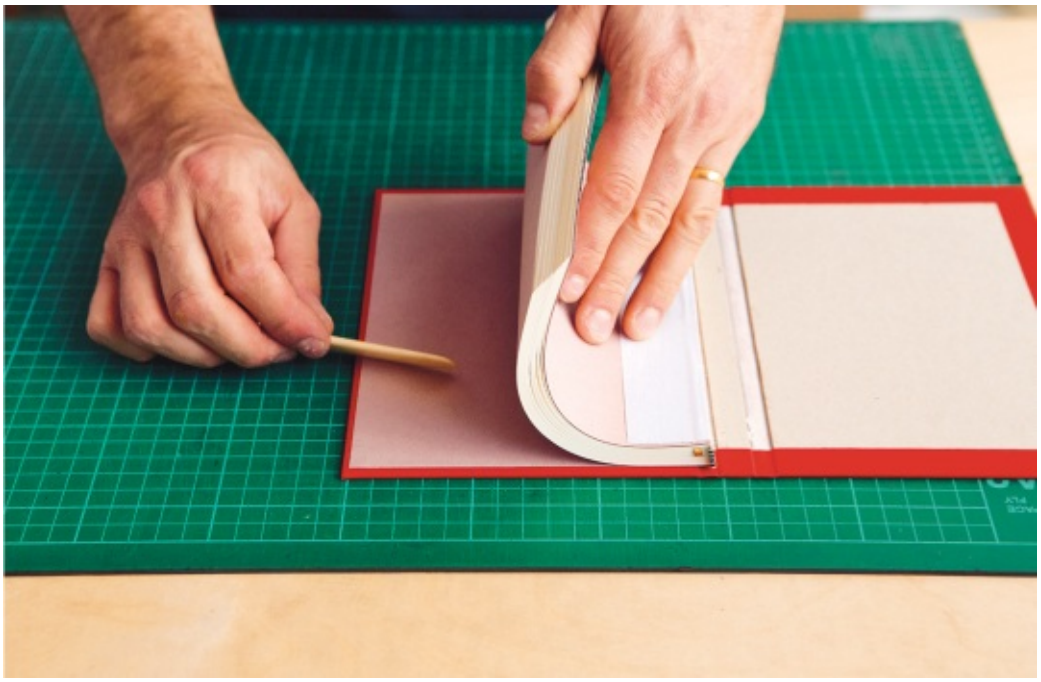
2. At this point, if desired, you can trim off about 1mm of the fore-edge of the front and back outer leaf of the endpapers.

fore-edge of the front and back outer leaf of the endpapers. This will counter the ‘stretch’ that happens when the endpapers are glued in the next step.

3. With the book block in place, place a sheet of waste paper inside the front endpapers. You will need to work quickly and carefully from this point. Apply PVA to the endpaper (glue under and then over the mull/fraynot) and swiftly take away the waste paper without lifting the endpaper. The endpaper will begin to curl.

4. Hold and steady the book block and case as pictured, and with your thumb and forefinger held against the fore-edge (to prevent the book block from shifting), close the front cover onto the endpaper. Make sure that everything is in position and aligned. Press down firmly on the cover.





We recommend trying this step without the PVA just to get a feel for it.

5. Place a sheet of blotting paper and barrier paper/plastic between the front and back endpapers. The blotting paper should be placed against the case/cover and the barrier paper/plastic should be placed against the book block.

6. Place a sheet of waste paper along the groove between the cover and spine, and rub down along the length to create a joint.

7. Put the book between boards, with the spine slightly sticking out, and place under weight overnight. Do NOT open the book until the glue is completely dry.

8. Once dry, cradle the spine of the book in your hand and, using scissors, trim off the Kraft paper overhanging the headbands at head and tail. Be sure to not cut the headbands.

Round-back case binding

Materials

See here for a note on paper sizes.

Eight sheets of A2 paper, no thinner than 80gsm and no thicker than 130gsm, short-grain.

Endpaper: Sheet of decorative paper, no thinner than 100gsm and no thicker than 140gsm, short-grain.

Greyboard: Sheet of 2mm greyboard no smaller than 250 x 350mm (9¾ x 13¾in), short–grain. Plus two extra sheets of greyboard – working boards – the same height or bigger than the book, any thickness, either grain direction.

Bookcloth: Approximately 350 x 450mm (13¾ x 17¾in), short-grain.

Linen thread: 25/3, approximately 2m (2¼yd).

Mull or fraynot: A strip approximately 210 x 50mm (8¼ x 2in), long-grain.

Kraft paper: A strip approximately the same size as the mull or fraynot, long-grain.

Two sheets of blotting paper.

Two sheets of barrier paper or plastic.

Headbands (optional): approximately two 2cm (¾in) strips (depending on the thickness of the book).

Ribbon (optional): 3mm (⅛in) wide, two and a half times the height of the book (approximately 60cm/24in).

PVA glue.

Waste paper.

Manila: a strip approximately the same size as the mull or fraynot, long-grain.

Tools

Bookbinding needle
Cutting mat
Bone folder
Spring divider
Scalpel
Backing hammer
Metal triangle or set square
Glue brush
Metal ruler
Mechanical pencil
Scissors or shears
Boards/weight

HOW TO MAKE THE BOOK

Follow the same steps for How to make the book, Sewing the sections, and Preparing the book block from **Flat-back case binding** (here).

Measure and note the size, height and width of your book block before rounding.

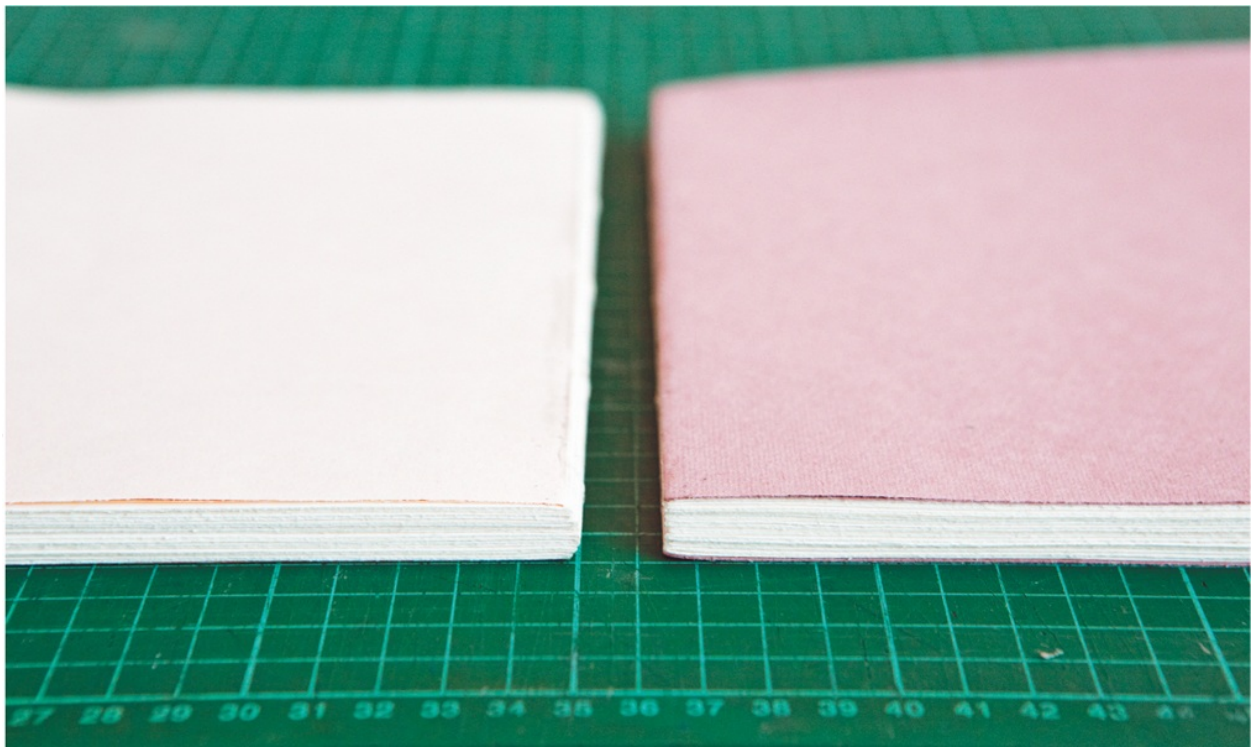
As the name suggests, the Round-back case binding has a rounded spine and a concave fore-edge that is typical of traditional bindings. A book with a rounded spine lies evenly flat and opens neatly. Rounding the spine with a backing hammer can be a bit tricky at first, but it will become easier with practice.

Rounding the spine

Once the book block has been prepared round the spine using a backing hammer. When using a backing hammer, you should hold the hammer with the ‘head’ in your hand, and the ‘face’ hooked between your forefinger and middle finger.

1. Hold the book with the spine away from you with your thumb hooked under the book. Lift up and fan out the fore-edge with your thumb while holding down the book firmly with your other fingers.

2. Hammer the top of the spine gently in a ‘glancing blow’ (a swooping/wiping motion) toward the fore-edge. Keep hammering across the length of the spine until the top half of the spine looks evenly rounded.



3. Do the same on the opposite side until the entire width of the spine is rounded and the fore-edge becomes concave. It can take a few attempts, so alternate sides to ensure that the spine is neatly rounded.

Ribbon and headbands (optional)

Follow the same steps for Ribbon and headbands from **Flat-back case binding** (here). Once the headbands are glued make sure that they are firmly attached to the rounded spine.

Lining the spine

Follow the same steps for Lining the spine from **Flat-back case binding** (here).

The case

1. Take a measurement of the spine thickness: wrap a strip of waste paper around the spine and mark the width of the spine onto the waste paper with a pencil.

2. Using the measurements of the book taken before you began rounding the spine (here), calculate and cut the piece of greyboard into front and back boards (see diagram on here).

3. Cut a piece of manila the same height as the cover boards and the width of the spine taken in Step 1. This will be your spine.

4. Once the greyboard pieces are cut, assemble the boards and book block to make sure that the sizes are accurate. Check that the square of the book is even at the head, tail and fore-edge.

5. Measure the joint: Place the assembled book on the work surface with about a third of the height hanging off the edge. Wrap a strip of waste paper around the spine, and pinch the book together with one hand. With your other hand, mark the edge of the board and the edge of the spine as pictured. Using a pair of spring dividers, note the measurement between the two marks, and add 1mm (this will allow for the thickness of the book cloth at the joint). Keep this measurement for later.

6. Take the sheet of book cloth and, with a metal ruler, and using the cutting mat grid as a guide, draw two lines, making a 90-degree angle leaving a 3cm (1¼in) border. Place on the

front cover board and lightly outline the board with a pencil.

7. With a glue brush, apply PVA to the area outlined and lay the first board carefully on the cloth, aligned to the two lines. Rub down with a bone folder.

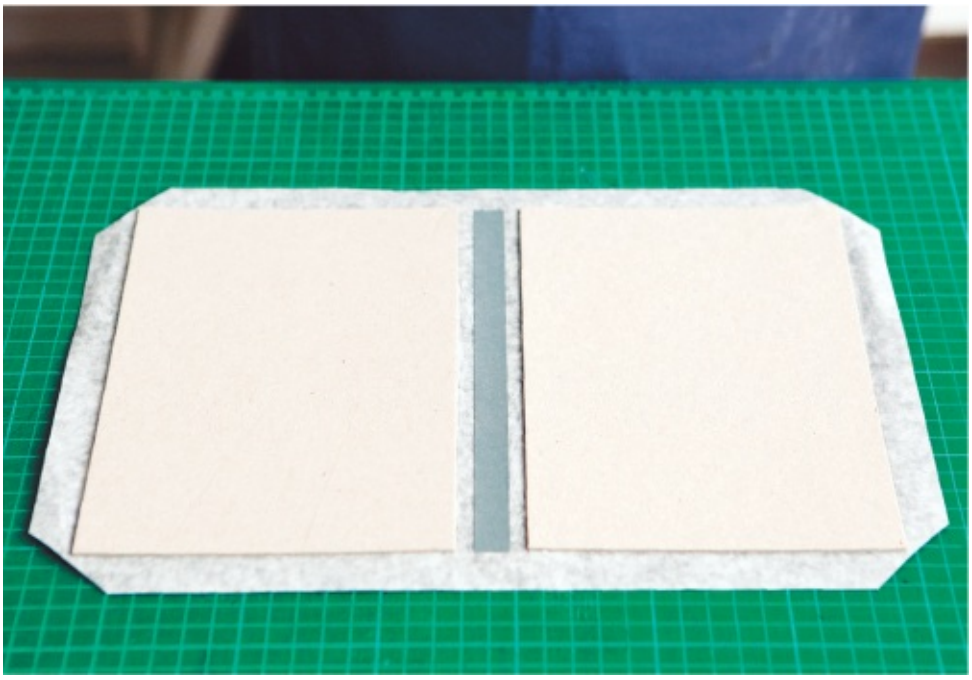
8. Place a metal ruler along the bottom of the front board and mark the joint at the head and tail using the measurement taken in Step 5. Apply PVA to the spine gap, and carefully lay down the manila spine piece using the two marks for the joint as a guide. Rub down with a bone folder.

9. Place a metal ruler along the bottom of the front board and manila spine piece, and mark the second joint at the head and tail using the measurement taken in Step 5.

10. Using the two marks as a guide, lay the back board on to the bookcloth, and lightly outline the board.

11. Apply PVA to the outlined area. Lay down the back board carefully onto the cloth – use the metal ruler to make sure that the front and back boards and spine piece are aligned. Rub down with a bone folder.

12. Trim the book cloth, leaving a border of about 3cm (1¼in) (the width of a common metal ruler), and trim the corners following the steps described on here of **Concertina with decorative paper covers**.



13. Fold and wrap the turnins following the steps described on here. In addition, be sure to rub down the cloth between the boards in the spine gap.

14. Place between boards and under weights for 10–15 minutes if desired.

15. Round the spine of the case by running the spine back and forth against the edge of the work surface as pictured.

Casing-in the book

Follow the same steps for Casing-in the book from **Flat-back case binding** (here).

Suppliers

Papers

Esme Winter
esmewinter.co.uk
Mail order. Patterned papers, printed marble papers, stationery.

Jemma Lewis Marbling
jemmamarbling.com
Mail order. Hand-marbled papers and marbling kits.

Payhembury Marbled Papers payhembury.com
Mail order. Hand-marbled papers.

G. F. Smith
gfsmith.com
Mail order. Commercial paper merchant. Wide variety of coloured and text papers.

R. K. Burt & Company Ltd rkburt.com
Mail order and by appointment at: 57–61 Union Street, London SE1 1SG
Fine paper merchant. Quality printmaking and fine papers.

John Purcell Paper
johnpurcell.net
Mail order and by appointment at: 15 Rumsey Road London SW9 0TR

Paperchase
paperchase.co.uk
Stationery store with branches across the UK

Stationery store with branches across the UK.

Bookbinding tools and materials

London Centre for Book Arts shop.londonbookarts.org
Unit 18, Ground Floor
Britannia Works
56 Dace Road,
London E3 2NQ
Bookbinding tools and materials, papers, bookcloth and covering materials, decorative papers, bookbinding kits. Workshops and classes. Membership and access to space and equipment. Advice sessions and consultation.

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hewitonline.com
Leather for bookbinding, bookbinding tools and equipment, covering materials. Mail order.

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Shepherds Falkiners
store.bookbinding.co.uk
Mail order and in person at: 30 Gillingham Street,
Victoria
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Fine and decorative papers, bookbinding tools and supplies.

Glossary

Accordion book A simple book structure created by making repeated folds on a strip of paper.

Awl A tool used for punching holes.

Bindery A studio, workshop or factory where bookbinding is carried out.

Board chopper A piece of equipment used to cut and trim greyboard and millboard.

Board Thick material, usually recycled, used for the covers of a case binding.

Bone folder A long and thin tool used for folding and scoring paper.

Book block Sections that have been sewn together: the 'inside' of the book.

Casing-in The process of gluing or attaching the book to its cover (or case).

Chapbook A simple bound book. Another name for a pamphlet.

Concertina A simple book structure created by making repeated folds on a strip of paper.

Endpapers The coloured or decorative sheets at the front and back of a case binding.

Finishing press A wooden press used to hold and steady a book while you work on it. Smaller than a laying press.

Folio A sheet of paper, folded once.

Fore-edge Opposite the spine of a book. The open side.

Fraynot A calico fabric used for lining the spine in a case binding.

Greyboard See Board. A widely available type of thick recycled board used for covers.

Grain The direction that the paper fibres lie in.

Guillotine Used to cut down sheets of paper and to trim books.

Head The top of the book (see here).

Headband Attached to the head and tail of the spine, traditionally to prevent wear and tear.

ISO system A series of paper sizes (A4, A3 etc).

Kraft paper A strong paper used for spine linings and spine stiffeners in a case binding.

Joint The groove between the spine and the front and back boards.

Laying press A wooden press used to hold and steady a book while you work on it.

Leaves The pages of a book.

Manila A strong card used for spine linings and spine stiffeners in a case binding.

Millboard A good quality, dense board used in fine bindings.

Mull An open-weave fabric used for lining the spine in a case binding.

Nipping press – Used for pressing books.

Pin vice – An awl-like tool with interchangeable drill bits, needles or pins.

Section A sheet of paper folded down to four or more pages.

Sewing frame Used to sew the sections of multiple books at the same time.

Sewing station A hole made through the fold of a section, which is sewn through.

Shoe knife A cobblers' knife used by bookbinders for slitting paper **Spine** The side where pages are joined. Opposite the fore-edge.

Spring divider An engineering tool used in bookbinding to accurately measure and mark repetitive lengths.

Tail The bottom of the book (see here).

Teflon folder A folding tool made from Teflon. Used in place of a bone folder.

Acknowledgements

We would like to thank Pavilion Books for this opportunity, and our editor, Amy Christian, and photographer, Yuki Sugiura, for their infinite patience and expertise; Makoto Yamada for help with the design, and all-around invaluable help at the studio; and Jay Cover for the wonderful illustrations (as always).

A very special thank you to all of our studio members, tutors and Friends of LCBA – too many amazing people to name here, but without whom none of this would have ever been possible.

First published in the United Kingdom in 2017 by
Pavilion
43 Great Ormond Street
London
WC1N 3HZ

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eISBN 978-1-911595-53-3

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